Microsoft moves Microsoft detailed a slew of product directions and noted it will spend $6.8 billion in R&D this year. PAGE 10.

Patch problems Users say patching software is a disruptive, time-consuming process that's only getting worse. PAGE 24.

NetworkWorld

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July 28, 2003 ■ Volume 20, Number 30

Buyer's Guide: COLLABORATION

WINNER BLUE RIBBON

- **Test:** Documentum's eRoom comes out on top in our collaborative workspaces review. **Page 35.**
- **Team up via e-mail:** A quick look at Kubi's e-mail collaboration tool. **Page 36.**
- **Before you deploy:** Five questions to ask before you roll out collaboration tools. **Page 37.**

Online Buyer's Guide

Head to Network World Fusion for a guide on collaboration tools and Web conferencing companies.

www.nwfusion.com DocFinder: 6482

Cisco IOS scare stirs questions

■ BY PHIL HOCHMUTH

A serious vulnerability in Cisco's IOS software has yet to yield publicly disclosed exploits, but the incident does punctuate the difficulty of properly maintaining IOS-based gear — especially for those running older versions, experts say.

It also has amplified concerns that Cisco might be trying to make IOS do too much.

Cisco notified customers July 16 that had it discovered a flaw affecting all devices running IOS software, whereby an attacker could disable a router by sending specially crafted IPv4 packets to the device. The next day Cisco posted a patch — which requires a router to come offline temporarily while rebooting — and a separate work-around that can be deployed without restarting equipment.

"We're monitoring this vulnerability . . . but we're not overly concerned about it."

Phil Go
CIO, Barton Malow

On July 18, it was reported that ready-made code written to exploit the IOS flaw was circulating the Internet and could be used by fairly unsophisticated users to crash routers.

However, no ISPs or companies have reported being hit as a result of the Cisco vulnerability.

■ Merrill Lynch swaps out Cisco VoIP gear for Avaya. **Page 10.**

See Cisco, page 55

New EMC storage arrays promise replication gains

■ BY DENI CONNOR

EMC this week is expected to introduce new Symmetrix DMX storage arrays with software that the company says will cut customers' total hardware costs and allow data replication over any distance.

EMC declined to comment, but sources say the company will announce:

- Two new DMX arrays that will represent the bottom and the top of EMC's product line.
- Technology that allows asynchronous replication of data between storage-area networks over unlimited distances for disaster recovery and increased data availability.
- ISCSI protocol support to enable the transport of SCSI data over Gigabit Ethernet networks.
- Fiber Connectivity (FICON) capability, which allows attachment of storage to mainframe servers.

See EMC, page 55

DNS is busting out all over

New uses continue to be found for 20-year-old 'Net technology.

■ BY JOHN FONTANA

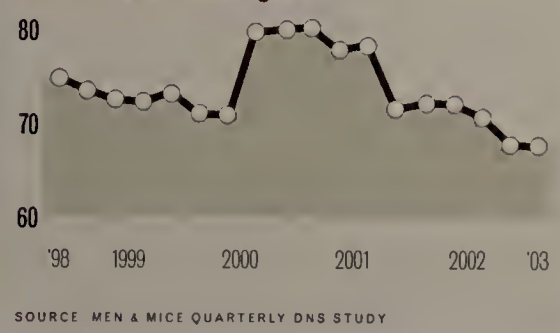
After 20 years as one of the cornerstones of the Internet, DNS is being tapped to revolutionize corporate supply chains, IP telephony, real-time communications and security.

DNS is being used to support two hot emerging technologies, radio frequency identification (RFID), which is expected to slash costs and streamline corporate supply chains, and the proposed IETF standard called Electronic Numbering (Enum), which promises to marry the PSTN to IP networks. DNS also is being adopted for IPv6 and could provide a foundation for a new-fangled public-key infrastructure (PKI) system and to help combat Internet-based identity theft.

See DNS, page 54

Devil in the details

DNS configuration errors have declined over the past five years but continue to expose companies to potential disasters such as losing e-mail service. As DNS becomes a foundation for other applications such as telephony, those errors likely will continue to expose vulnerabilities.



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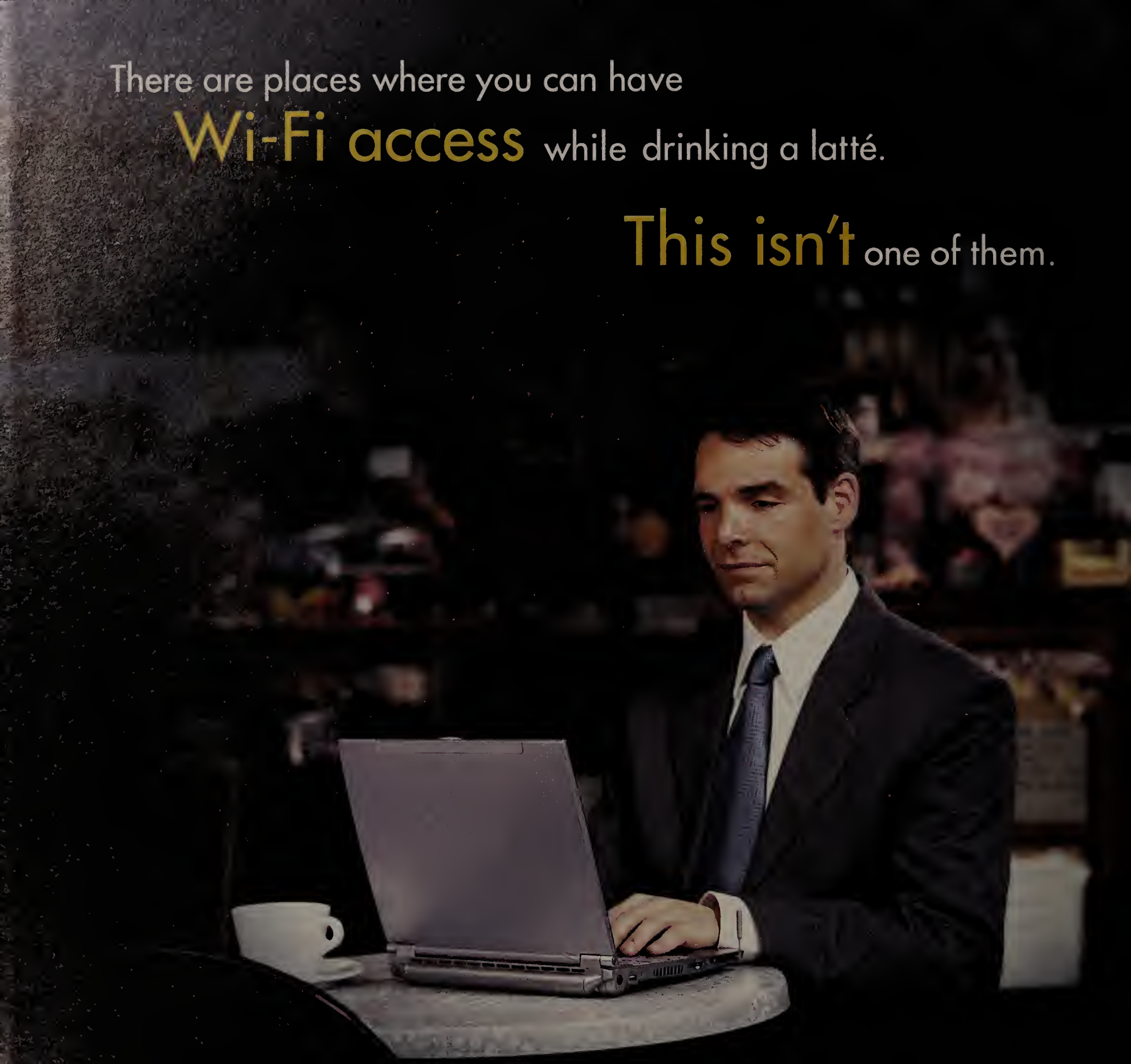

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Sony's new Clie PDA comes with 802.11b Bluetooth technologies.
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Features

Review: Collaborative Workspaces
Documentum's eRoom wins Blue Ribbon Award for its cool virtual team space.
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Tester's Choice
David Newman checks in with his first impression of wireless LAN switch testing.
Page 38.

Feature: VoIP unwired
Voice and wireless LANs might seem like an odd coupling, but for some companies it might just be the perfect combination.
Page 39.

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Interactive

Collaboration tools and Web conferencing Buyer's Guides
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Wireless Wizards
In our newest Fusion-exclusive column, each week our Wizards will answer your tough enterprise wireless questions. This week they help Stuart in Ithaca, who's wondering if his current access points will work with next-generation switches. **DocFinder: 6939**

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Columnists

The Multimedia Exchange
Wainhouse Research Summit 2003
Multimedia Editor Jason Meserve attended the summit last week and offers up the latest news and analysis from experts on videoconferencing, Web conferencing and streaming.
DocFinder: 6940

Telework Beat
Telework on the upswing
Net.Worker Editor Toni Kistner explores a new AT&T survey that predicts high telework growth in two years.
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Small Business Tech
New apps teach Outlook new tricks
Columnist James Gaskin tries some add-ins that provide a collaborative workspace and enhanced cell phone links.
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News Bits

Survey: Users to run with portability

According to The Management Network Group, a research and consulting firm, a large number of businesses plan to switch wireless service providers once wireless number portability goes into effect in November. Based on new regulations, wireless service providers will be required to let customers switch to a new carrier while holding on to their wireless telephone numbers. TMNG says 24% of businesses with more than 500 employees are ready to switch to new providers once wireless number portability is available. Twelve percent of users say they will make the move within 90 days. The study is based on 100 telephone interviews with users who make buying decisions for their companies.

SCO offers new litigation shield

The SCO Group has opened another chapter in its fight to protect its ownership of the Unix System V source code, calling on Linux customers to buy UnixWare licenses from SCO in order to protect themselves from future litigation based on copyright violations. Last week, the company announced it had received copyrights for the Unix System V source code, giving it "broad legal rights against end users with respect to infringing use of Linux." The move expands SCO's legal battle, which began earlier this year when it sued IBM for $3 billion for allegedly misappropriating protected Unix code into its version of Unix, AIX. It then accused IBM of contributing the protected code to Linux. Darl McBride, SCO's president and CEO, says the advanced symmetric multiprocessing capabilities of Linux 2.4 were ported illegally from its Unix System V code. He says users of Linux 2.4 and later versions who purchase a run-time binary UnixWare license will be held harmless of any future actions for use of Linux. Pricing for the license was not specified. (See related story, page 56.)

Microsoft adds legal protections

Microsoft, which has been tweaking its new licensing program since it went into effect more than a year ago, is at it again. The company has altered the indemnity provisions of its software license so that it will be liable if a customer gets sued because of Microsoft products. In the past, Microsoft would accept liability only up to the amount the customer had spent on the software. Microsoft also increased software warranties to a year from 90 days, and said it would give customers 30 days' notice, instead of just 15, before conducting software audits. The changes took effect March 1.

Researchers say voting machine vulnerable

Researchers are heaping criticism on electronic voting machines built by Diebold Election Systems after examining software code for the machines said to have been posted to the Internet by an activist. Avi Rubin, technical director of the Information Security Institute at Johns Hopkins University, says the code shows a voter easily could trick the machine into accepting more than one ballot per voter. Another researcher, Dan Wallach, assistant professor of computer science at Rice University, echoed the findings, which have been issued in a technical report (see details at www.nwfusion.com, DocFinder: 6949), saying the country needs to have extensive independent security evaluation of all electronic voting machines on the market. Diebold's response was that the company would "reserve judgment on the researchers' fundamental conclusions," and Diebold noted that the researchers themselves acknowledged they could not be sure the code was actually from Diebold.

COMPENDIUM

Building an intranet

After several weeks of playing around with various collaborative tools, such as TWiki, we've settled on Movable Type as the platform for our new intranet. It's a lot more flexible than you might think at first, and because we already use it, there's a shorter learning curve. ***Read more at www.nwfusion.com, DocFinder: 6928.***

The Good The Bad The Ugly

Beyond book covers. The 'Net might be a treasure trove of information, but to date that bounty has been conspicuously lacking in a most important source of knowledge: the actual text of books. That may soon change, according to *The New York Times*, which reports that Amazon.com is negotiating with publishers to provide a searchable online archive of tens of thousands of nonfiction books.

Handhelds slip. Worldwide shipments of handheld devices plummeted 10.7% in the second quarter, according to IDC, which blames tight budgets and a lack of compelling new applications for the drop-off. Palm continues to pace the market with an almost 40% share.

Risky business. And people worry about using public toilets? A New York man last month pleaded guilty to charges arising from his secretly having installed on public terminals at more than a dozen Kinko's stores software that captures individual keystrokes. He grabbed personal identification information from about 450 users and opened bank accounts using the data. Experts call the crime a growing menace at Internet cafés. ➤

Novell set to ship NetWare 6.5

Novell last week announced that it would ship the next version of its flagship operating system Aug 15. NetWare 6.5 will include a Java 2 Platform Enterprise Edition and Tomcat application server, open source applications such as the Apache Web server and MySQL database, and Perl and PHP development environments. In addition, Novell is bundling its Nterprise Branch Office and Virtual Office technologies in NetWare 6.5. A 100-user license will sell for $18,400.

HP, IBM and Sun ready security gambit

HP, IBM and Sun are allying with three security providers next week to announce an open standards initiative for safe computing. Although the vendors did not provide details of the initiative in an invitation to an Aug. 5 conference call on the subject, Gartner analyst John Pescatore says the announcement centers on the adoption of a technology that lets companies monitor changes made to software on servers. Pescatore says he previously was briefed on the subject and that the initiative will bring technology from Tripwire to HP, IBM and Sun's server products. The announcement is being made with Tripwire, RSA Security and InstallShield Software. Tripwire develops technology that uses digital fingerprints and is designed to let companies see if software on their servers has been changed. RSA will make the digital signatures, and Tripwire will provide the signature database. InstallShield provides software that enables distribution and management of software and digital content.

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Merrill Lynch swaps Cisco VoIP gear for Avaya

■ BY PHIL HOCHMUTH

VoIP early adopter Merrill Lynch last week said it was taking out large Cisco-based IP telephony installations at campuses in New Jersey and Tokyo and replacing them with a mix of IP and traditional telephony gear from Avaya.

The move comes after IT executives at Merrill — which adopted Cisco's VoIP in 2000 — "became increasingly concerned about putting all of our eggs in one basket," according to a Merrill Lynch spokesman involved in the project.

"If we were to move to an IP-only telephony network, then a successful attack on our IP network would leave us without both voice and data," the spokesman says. The move is part of a global IT policy to push forward with IP telephony but have TDM voice as a backup, he added.

To accomplish this, Merrill Lynch plans to pull out Cisco CallManager IP PBXs and IP phones and deploy Avaya S8700 media servers, which can switch calls for IP and TDM — a feature Merrill Lynch wanted to ensure backup. Avaya PBXs already are used at some Merrill Lynch sites.

Merrill Lynch says the move to dual IP/TDM voice would have been hard to accomplish with voice gear that worked only in an IP environment.

"The problem for us today was that the Cisco IP handset was specific to a particular [IP telephony] switch," the Merrill Lynch spokesman says. "You cannot mix Cisco handsets and Avaya [TDM] switches, and vice versa. That gave us no choice but to replace the Cisco handsets."

Cisco did not answer a request for comment on the new Merrill Lynch strategy.

The Merrill Lynch spokesman says the mixed Avaya environment will give the company the flexibility of IP telephony, with traditional phones available as a backup.

By year-end, the company plans to migrate a majority of 5,800 employees at its Hopewell, N.J., campus and 1,800 workers at its Tokyo regional headquarters to Avaya IP handsets, but with some Avaya TDM phones mixed in.

The spokesman says that a "doubling of attacks" on the firm's IP network over the last 18 months prompted rethinking of the firm's IP convergence strategy. He did not elaborate about the attacks.

"The main thing to get across is that this was not a vendor-preference decision at all," the spokesman says. "This is basically risk-assessment-driven." ■

Microsoft hanging its hat on Longhorn server, client

■ BY JOHN FONTANA

Microsoft last week finally acknowledged that it was developing a server version of its Longhorn operating system and said the evolution of its next-generation enterprise software lineup would be integrated around both the client and server version of that operating system.

"Longhorn is the next generation; it's a big bet for us," said Bill Gates, Microsoft's chairman and chief software architect, at the company's annual meeting with financial analysts. It's the latest in a series of bets Microsoft has made. Gates said Microsoft was committing $6.8 billion to research and development, an 8% increase over last year. The figure, however, includes employee stock compensation, which replaced the stock options program earlier this month.

"It's clearly many years of work that we're engaging in," Gates said. "Longhorn is not just a release of the Windows client, it's also a release where in the same time frame you'll have advances in Office, our server products. Virtually everything at Microsoft is synchronized to build on this platform and take advantage of that."

The synchronization means slippage in the development of any of the new software could mean delays in the entire platform. CEO Steve Ballmer, acknowledged that was a risk in the Longhorn integration efforts.

Gates said the company does not have a time frame for delivering on its efforts. He said some of the advancements related to Longhorn would come before the shipment of the operating system, which is planned for 2005. A beta is scheduled for next year.

The advancements, most of which have been announced, include a platform-wide management infrastructure, an integrated file system called WinFS, workflow that incorporates business process and employee interaction, business intelligence, user interface additions and the evolution of the .Net Web services platform code-named Indigo.

Gates offered one caveat, saying the linchpin is the company's Trustworthy Computing program, which took a hit this month with the discovery of a critical vulnerability in Windows Server 2003. The operating system was the first developed under the initiative, which began in January 2001 to secure Microsoft's source code.

"Trustworthy Computing, that's a piece that we've got to get right or all the other advances won't really matter," Gates said.

The biggest advancement is the Longhorn server, which is needed to support the emerging management platform and the distributed WinFS file system.

Eric Rudder, senior vice president of the company's server and tools business, laid out the product road map for this fiscal year, which began July 1. It includes many products already expected as follow-ons to Win 2003, including SharePoint Services and the newly re-named Microsoft Office Live Communications Server 2003, which was code-named Greenwich. Rudder also said Microsoft is developing an application called Audit Collection System. ■

Heavyweights tip scales for offshore outsourcing

■ BY DENISE DUBIE

The news last week that IBM might outsource some U.S. white-collar jobs overseas has thrown fuel on a smoldering fire.

While IBM contends it has no formal plans to shift jobs, an employee activist organization leaked to *The New York Times* a recording of a conference call among IBM executives discussing just that.

The Washington Alliance of Technology Workers in Seattle passed the recording to the newspaper and to Alliance at IBM, an Endicott, N.Y., activist organization of current and former IBM employees. While IBM denied any plans, the Washington Alliance says the recording has Tom Lynch, IBM's global employee relations director, saying shifting jobs would raise concerns among government officials worried about the lagging U.S. economy and out-of-work IT professionals.

"Some of the reaction to this is hype, but there is a move toward doing more offshore outsourcing," says Carrie Lewis, a senior analyst in technology management strategies at The Yankee Group. She says that offshore companies expanding their service offerings, along with the reduced cost outsourcing represents, could have more companies moving positions outside of their core business competencies to overseas locations.

Microsoft and HP also recently moved IT positions to operations in India. The Washington Alliance reported in November that Bill Gates said Microsoft would invest $400 million over the next three years to expand its activities in India, $100 million of which would go to its facility in Hyderabad. And HP shifted 1,200 Compaq customer service jobs from Florida to the existing HP center in India.

So even though the IBM discussion is in keeping with industry trends, the news could represent something of a tipping point and lead to an IT employment backlash, says William Martorelli, vice president at Giga Research.

"People seem to have taken this IBM story as a key signal that things have really changed," he says. "It does mark a structural change within a company, and it's more likely a permanent change for companies looking to up their competitive advantage."

The Information Technology Association of America in May reported the results of a survey that showed 22% of respondents have moved work offshore and 15% have opened operations overseas.

Forrester Research estimates about 3.3 million U.S. services jobs, or about $136 billion in wages, will be located in countries such as India, Russia, China and the Philippines by 2015, with the IT industry leading the mass offshore exodus.

Job flight

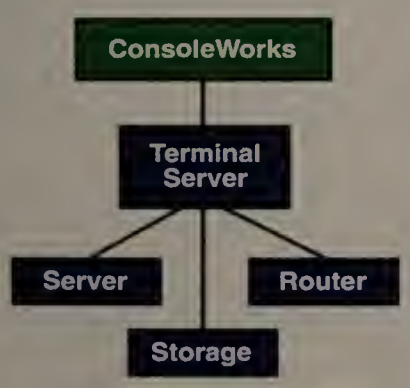
U.S. employers will have about 3.3 million white-collar service jobs and $136 billion in wages overseas in 2015, up from $4 billion by 2000, according to a November 2002 study by Forrester Research.

Traditionally, the type of jobs sent overseas didn't threaten the U.S. high-tech employees, but Yankee's Lewis says offshore companies are expanding their service offerings to try to cash in on more outsourcing opportunities from the U.S. While it will take at least two to three years before foreign companies can equal the outsourcing services available in U.S. today, the threat of losing more IT jobs still exists.

"As the offshore companies try to move upstream and add deeper services, they could potentially begin to move into higher-skilled positions," Lewis says.

IDG News Service Correspondent Stacy Cowley contributed to this story.

You Never Know When It's Their Time To Go



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TECSys Development

Dell scraps eight-way line, pushes clustering

■ BY JENNIFER MEARS

While eight-way Intel boxes running database and transactional applications remain a staple in most large data centers, Dell's decision to scrap its high-end line of eight-processor servers last week highlights an evolving trend toward clustering low-end boxes, analysts say.

Dell said it would shelve its eight-way product line, although it will continue servicing its current PowerEdge 8450 customers through the foreseeable future. The move is in line with a strategy Dell articulated in the spring to help customers cut server costs by encouraging them to use clusters of lower-priced Intel boxes to get the processing power of more expensive, bigger boxes.

"IDC's belief is that a long-term trend in the industry is to be able to couple together groups of smaller-scale systems like four-way or two-way servers to accomplish a lot of the tasks that bigger traditional [symmetric multiprocessing] systems could only do," says Mark Melenovsky, an analyst at IDC.

Not that this spells trouble for big SMP boxes. Both IBM and HP are committed to their eight-way Intel server businesses and say that they are seeing demand for the boxes not only to run big applications, but also as customers consolidate proliferating Intel servers onto single machines.

"Clustering is good for problems that can be easily subdivided and has some real advantages from a hardware cost standpoint," says Nathan Brookwood, principal analyst at Insight 64. "But if the problem doesn't lend itself to that kind of decomposition then that's not necessarily the best solution."

Nevertheless, the demand for eight-processor systems has taken a hit as a result of the tough economy, IDC says. Of about 415,000 x86-based servers shipped during the first quarter this year, only about 3,000 were eight-processor systems, the research firm says.

The stepped-up power of dual processor Xeon chips isn't helping the eight-way market, either, as businesses find they can get what they need in lower-cost low-end boxes, analysts says.

"Customers are looking for short-term [ROI] for their IT infrastructure, so they're buying two-ways when and where they can instead of potentially investing in a large-scale system that they might grow into over years," Melenovsky says.

At veterinary research firm Intervet, for example, eight-way systems only got a passing glance. Chad Elliott, technology team leader at the Millsboro, Del., company, says clustering two-way PowerEdge 2650s and four-way PowerEdge 6650s gives him the processing power he needs, while protecting him from downtime because of hardware failures.

"We looked at clustering for the fault tolerance it provides," he says. "With one big server, when that goes down everything on that server is down until you get it fixed. With a clustered solution, if you lose one physical server within the cluster, it all fails over to a server that is working.... With a big eight-way box, it's putting all your eggs in one basket."

Bill Hicks, senior vice president of technology and CIO at Precision Response in Miami, says that managing two-way and four-way boxes is easier than handling a more sophisticated eight-way machine.

"Getting two-way or four-way boxes to perform well is much easier than making eight- to 32-way systems work well," he says. "Complex systems cost more and introduce more risk."

See Dell, page 54

Each has advantages

Should you be scaling up or scaling out? Some things to think about:

The case for clustering:

- **Cutting costs.** Clustering four two-way boxes that run in the thousands of dollars can save you cash vs. buying a $45,000 eight-way box.
- **Pay as you grow.** As processing needs grow, throw another two- or four-way box into the cluster. No need to have idle hardware standing by.
- **Backing things up.** Clusters give you backup and failover that you wouldn't get with a single box.
- **Software support.** ISVs such as Oracle with its 9i Real Application Clusters are writing applications designed to run in distributed environments.

The eight-way agenda:

- **Processing oomph.** Large database- and transaction-intensive applications aren't yet ready for distributed environments and need the performance of one multi-processor system.
- **Consolidation.** Running virtualization software on eight-way machines results in less data center sprawl.
- **Managing things.** Fewer boxes means fewer administrative and management headaches.
- **Building blocks.** Vendors such as IBM and HP offer Intel machines that can start with fewer processors and scale up to eight-way systems (and bigger), as needed.

Secure Sockets Layer: Too much of a good thing?

SSL remote access is popping up all over, but not all users want all the features.

■ BY TIM GREENE

Companies looking to use Secure Sockets Layer remote-access technology for reaching private corporate servers over the Internet are getting more options to buy this capability bundled in boxes with other functions.

F5 Networks last week bought SSL remote-access vendor uRoam with the idea of marrying uRoam's remote-access capabilities to F5's load-balancing/Web acceleration box called Big-IP. Earlier in the week NetScaler announced that it plans to add SSL remote-access software to its Request Switch 9000 iON Web acceleration appliance.

Combining features on one device would reduce the number of boxes in networks. This would suit companies that want to let authorized users securely access servers using just the Web browser on Internet-connected PCs, and that want to proxy and load-balance access to servers. So for instance, when the products are integrated, rather than buying an F5 Big-IP switch and a uRoam FirePass SSL remote-access server, customers will be able to buy a Big-IP that has FirePass features.

Because these devices individually would occupy the same spot in the network — between the firewall and corporate servers — it makes sense to combine functions so the traffic is parsed once, has multiple policies applied to it and then is forwarded to its destination, according to Richard Steinnon, research director for network security at Gartner. Other vendors, such as Fortinet, NetContinuum, TippingPoint Technologies and Blue Coat Systems, combine security and traffic shaping, he says, adding that these perform intrusion detection and other security screening, but not SSL remote access.

Not all users would find a smorgasbord of features attractive. Raymond Williams, network engineer for Northwest Multiple Listings in Kirkland, Ore., uses an F5 Big-IP box to balance traffic to servers, but says he does not need SSL remote-access capabilities. He bought the device to meet a specific need, boosting server performance.

A host of vendors are approaching SSL remote access from different angles. Vendors such as Aspelle, Neoteris, SafeWeb and uRoam have focused on SSL remote access. Others, such as Array Networks, support SSL remote access but also load-balance among the Web servers they protect, cache frequently accessed sites and compress traffic. And traditional network and security vendors such as Check Point, Nokia and Nortel are making SSL pushes. Cisco says it will enter the market in the fall, but hasn't said how.

Part of the lure may be that the SSL remote-access market is poised to explode, according to Infonetics research, which predicts that more than $900 million will be spent on the gear in 2006.

The flood of vendors trying to get a piece of the action could pose a problem for network executives because there will be so many products to choose from with so many varying features, says Zeus Kerravala, an analyst with The Yankee Group.

"There's such a thing as too many options," he says. "SSL remote access was a simple solution to a big problem. Now vendors are trying to address many different problems. Users need to define what problem they want to solve and look for the product that solves it." ■

Hope for a big return

With SSL remote-access gear predicted to haul in $900 million in 2006 by Infonetics Research, venture capital firms have been pouring tens of millions of dollars into start-ups focusing on this technology.

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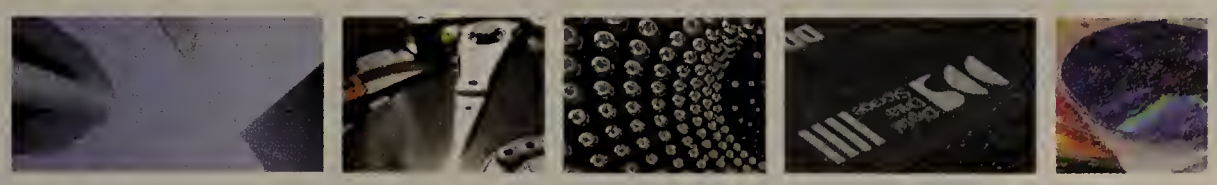

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Bluetooth gets greasy and gritty

■ BY JOHN COX

This is the future of coolness in wireless: a Bluetooth radio housed in a dirt-tight metal brick that's the size of a paperback book, weighs over a half-pound, and has a GUI that consists of three LEDs.

It's cool because you can hang the brick on a conveyor belt, rotating kiln, water pump or crane and transmit temperature, vibration and other data up to 300 feet without the time, trouble and cost of running wires.

Welcome to industrial Bluetooth.

With little fanfare, Bluetooth is gaining acceptance in many gritty, greasy and loud applications that are a far cry from cell phones and headsets. For example:

- A steel company saved $10,000 using Bluetooth instead of cabling to connect a new set of sensors to the control room of one plant.
- A cement manufacturer uses Bluetooth to simplify installing, and to maintain temperature and moisture sensors on huge rotating kilns.
- The city of Oslo, Norway uses Bluetooth to monitor the status of heavy equipment at 179 water pumping stations.
- A metals fabricator saved weeks and tens of thousands of dollars in rewiring costs by using electronic sensors and Bluetooth to track pours of molten metal into industrial molds.

A 2002 study by research firm Venture Development predicts that overall product shipments for all types of wireless monitoring and control gear in manufacturing will increase from about $109 million in 2001 to about $752 million in 2006, growing at a compound annual rate of about 47%.

A study this year by In-Stat/MDR concludes that Bluetooth product shipments in vertical markets such as manufacturing, utilities, transportation, mining and healthcare will jump from almost nothing this year to nearly 2.5 million in 2007. In-Stat analyst Joyce Putscher says manufacturing and healthcare will be the most active segments.

Unwiring these kinds of products yields some dramatic benefits for industrial operations.

"Eliminating cables is a huge part of this picture," says Sandy Harper, senior research and development project engineer for Parker Hannifin, an industrial controls company based in Cleveland. "There is a lot of wear and tear on cables in harsh environments or in robotics or other applications where machinery is constantly moving."

A $5 to $10 Bluetooth chip embedded in a sensor or programmable logic controller can eliminate not only that ongoing maintenance burden but also the costs of laying cable. William Drake, manager of wireless technology for Wilcoxon Research says one oil company client estimated that putting new cable into existing aluminum conduit in a refinery cost $25 per foot; if you had to put in new conduit as well, the cost shot up to $100 per foot.

One of the surprises for users is realizing the current range of the Bluetooth chips. "When we go to automation conferences, two out of every three questions we get are, 'I thought Bluetooth was only good for [33 feet],' " Drake says. "We built a Bluetooth Class 1 [328 feet] radio for sensor applications." A reach of 300 feet gives Bluetooth flexibility in connecting industrial sensors and controls with existing manufacturing networks.

Another attraction is the robust 128-bit encryption scheme in the Bluetooth specification that protects data transmissions from malicious interference.

Bluetooth's adaptive frequency hopping lets a Bluetooth 2.4-GHz radio sidestep channels occupied by other radios or by electromagnetic emissions.

In most of these applications, it is not a problem that Bluetooth's bandwidth peaks at 1M bit/sec. Sensors and similar devices typically send and receive small chunks of data, and Bluetooth's pipe is more than enough.

Despite these strengths, the new industrial automation working group in the Bluetooth Special Interest Group is fine-tuning Bluetooth for industrial uses.

Additions will be made to existing Bluetooth profiles. The profiles describe how to use Bluetooth for specific tasks, such as printing and serial communications. The new working group, chaired by Wilcoxon's Drake, will create, in effect, a supplement to some of these profiles. For example, serial communications for industrial use might include some specific protocols. Another supplement would specify a wider range of environment temperatures to address the harsher conditions often found in industrial environments.

Drake says he hopes to present a preliminary draft and a test procedure for certification at the Bluetooth Developers Conference in December.

All this activity is having an effect on users.

A recent survey of buyers of data acquisition gear in various industries found a high level of awareness of Bluetooth, says James Taylor, group manager for industrial automation at Venture Development. "A year ago, we did not find a heck of a lot of interest in Bluetooth," he says. "In this study, we found 4% currently using Bluetooth in data acquisition. But looking out five years, 21% said they were likely to be using Bluetooth." Among OEM companies serving the medical/healthcare market, that number was 40%.

The awareness is being fueled by a growing product portfolio from an increasing number of vendors, including ABB Group, BlueGiga Technologies, ConnectBlue, Parker Hannifin and Wilcoxon.

Wilcoxon released its BlueLynx wireless sensor link in January that is targeted at process-control applications using a 4- to 20-milliampere signal. The device can monitor vibration, pressure, temperature or flow sensors, or any combination of these. In April, Frost & Sullivan gave the BlueLynx a 2003 product of the year award for industrial technology.

Socket Communications and Isochron Data recently released the first in a series of Bluetooth products to let PocketPC handheld devices manage industrial equipment. The first product, VendCast Mobile, links the handheld with controllers in vending machines.

Parker Hannifin is expected to soon release an array of Bluetooth products it has been demonstrating at trade shows. One demonstration includes several pneumatic, electromechanical and hydraulic devices controlled by a new Bluetooth "valve island" that wirelessly sends control signals to the various devices.

Other wireless technologies will have their place with Bluetooth or even compete with it. In May, the IEEE began crafting Zigbee, the draft specification of 802.15.4, aimed at creating an even lower-power, shorter-range, wireless technology (see www.nwfusion.com, DocFinder: 6945). And Ericsson Technology Licensing reportedly is considering developing a more-lightweight derivative of Bluetooth in response. ■

"Eliminating cables is a huge part of this . . . There is a lot of wear and tear on cables."

Sandy Harper
Senior research and development project engineer

Big plans for Bluetooth

A 2003 survey of data acquisition product buyers found that 4% are using Bluetooth today. But by 2007,

21%

expect to be using it for industrial-class gear.

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Short Takes

■ Wireless LAN security company **AirDefense** last week released a new version of its monitoring software, adding support for the new 802.11g wireless standard and a policy-enforcement feature that can push configuration changes to remote access points. AirDefense 3.5 is the second generation of the company's WLAN monitoring software. The product sits on top of wireless VPNs and encryption technology, and lets administrators survey wireless access points and client machines across their networks, the company says. With a server appliance and a distributed network of sensor appliances, AirDefense lets customers monitor all activities on their WLANs from a centralized management interface. The platform consists of two modules: AirDefense RogueWatch, which provides monitoring features and spots unauthorized access points; and AirDefense Guard, which includes network intelligence and security features. AirDefense is available for about $10,000.

■ **UltraBac Software** announced new software last week that backs up servers and workstations by taking a snapshot disk image. Called **UltraBac Disaster Recovery Pro,** the software takes images of the data to be backed up on a scheduled basis. The image file is compressed before being stored on tape or disk and can be restored at up to 800M byte/minute on a Gigabit Ethernet network. UBDR Pro, which works on Windows networks, is $695 per server.

Foundry adds load-balancing, security features

■ BY PHIL HOCHMUTH

Thwarting denial-of-service attacks, load balancing multiple ISP links and speeding Web services traffic — these are among the new features in Foundry Networks' ServerIron switches, the vendor announced last week.

Foundry's TrafficWorks Ironware 9.0 operating system — which runs the ServerIron switch — includes an XML switching component that could help users accelerate load balancing of XML-based traffic among servers running Web services applications. Other upgrades in the code are aimed at helping stop TCP ACK DoS offensives against servers, and another function allows for WAN-link load balancing for sites connected to multiple ISPs.

Industry watchers say hardware that improves the performance of XML-based traffic on a LAN or WAN could become an infrastructure must-have. They say companies with Web services strategies will become heavy XML users because XML is the core messaging protocol for platforms such as Microsoft .Net and Sun One.

The XML switching figures into the plans of Forbes.com, which has ServerIron 100 and ServerIronXL switches deployed to load balance dozens of Web content servers.

"The ability to load balance traffic based on XML data is of high value to us," says Mike Smith, CTO for Forbes.com. The Web site plans to roll out Web services applications this year to support the services for advertisers and readers.

"Supporting Web services will become a requirement [for load balancing equipment] as everyone in the industry starts to adopt .Net and Java [Web services] applications," he says.

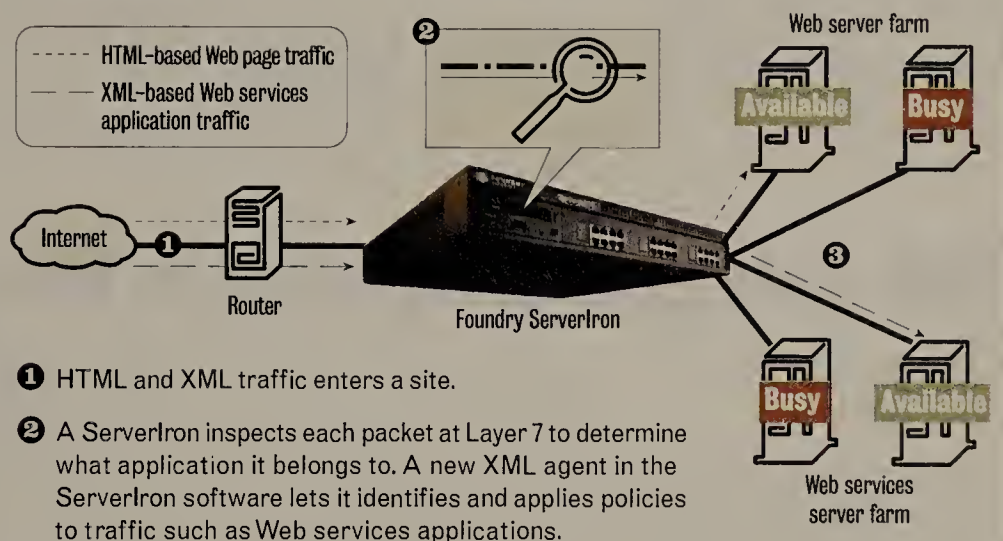
Foundry's ServerIron family includes the ServerIron 100, 400 and 800 line of modular switches and the ServerIronXL fixed-configuration switch.

ServerIron is deployed as a load-balancing device, a capacity in which it identifies

See Foundry, page 18

Going deep

New software for Foundry's Layer 4 to 7 ServerIron switch could help speed up XML-based Web services traffic.



❶ HTML and XML traffic enters a site.

❷ A ServerIron inspects each packet at Layer 7 to determine what application it belongs to. A new XML agent in the ServerIron software lets it identifies and applies policies to traffic such as Web services applications.

❸ XML and HTML traffic are sent to their respective servers, and traffic is load-balanced among Web and Web services boxes.

Start-up offers InfiniBand iSCSI router

■ BY DENI CONNOR

Start-up Voltaire recently gave users a peek at software that will let them link departmental or remote storage to servers in data centers, or connect tape drives or libraries to networks for backup.

At the recent Cluster World conference, the company said it plans to add iSCSI capability to its InfiniBand switch/router and host channel adapter. The iSCSI protocol lets Fibre Channel data be transported across Gigabit Ethernet networks. Currently, the company's ISR 6000 switch/router connects network-attached storage arrays and other storage-area network arrays to InfiniBand-clustered servers via Fibre Channel.

The company's iSCSI/InfiniBand software uses the Remote Direct Memory Access (RDMA) features built into InfiniBand to remove the overhead that iSCSI imposes, reduce latency and eliminate the need to install a separate Fibre Channel adapter when a server is connected to an InfiniBand fabric.

Storage boost

According to IDC, the market for iSCSI storage arrays will grow from $12 million in 2002 to $4.9 billion by 2007.

To enable iSCSI RDMA and InfiniBand, a user would insert an InfiniBand adapter in a server instead of a Fibre Channel adapter. The adapter, which would have iSCSI RDMA software installed, would communicate using iSCSI with the InfiniBand switch router.

Other vendors such as Topspin Communications and InfiniCon already use an alternative to iSCSI RDMA over InfiniBand called the SCSI RDMA Protocol (SRP), which exchanges data between SCSI devices using RDMA. Unlike Voltaire's approach, SCSI RDMA does not have a management infrastructure and is proprietary, the company says.

"Voltaire is using a more standard and universally accepted protocol called iSCSI, which is going to become prevalent a year from now," says Arun Taneja, a senior analyst with Taneja Group. "SRP was done before iSCSI became the dominant protocol."

In addition, the company announced that StoreAge's virtualization software will run on its ISR 6000 InfiniBand switch/router, letting users congregate storage resources from disparate storage arrays into a pool for easier management.

Pricing of the iSCSI-enabled switch/router has not been announced. It is expected to be available this fall. ■

WIRED WINDOWS
Dave Kearns

A 'Web service' you can use

If you misplace your cell phone, it's fairly easy to use a different phone to call it and then follow the ring to retrieve it. Even if you've left it beyond the range at which you could hear it, someone might answer it and tell you where it is. Suppose you could do something similar with your car keys, your dog or even your kids?

Former Apple wiz Steve Wozniak thinks people would pay to be able to quickly locate those things they frequently misplace or otherwise lose track of. His Wheels of Zeus (www.woz.com) start-up hopes to combine the Global Positioning System (GPS) with a low-power, long-range wireless protocol that operates at about 1,200 baud. The company expects the combination GPS monitor and wireless radio to sell for less than $100. It is estimated that this can cover a range of 1 or 2 miles, but Wozniak believes it can be extended by using the Internet — by connecting one radio to another in a global peer-to-peer network you'd be able to search within a couple of miles of every attached wireless device.

You'd need to tag everything you wanted to be able to trace (probably you'd need to imbed one in a teenager, or make it look like a safety pin!) but the tags should be small enough to be unobtrusive.

You could put one on employees' ID cards, and then easily track down the person who was late for (thus holding up) the meeting. (That's a joke; I don't think the system would work well except in the smallest companies.)

Now I'm sure the privacy purists will be up in arms once again, just as they were with Wal-Mart's plan to use radio frequency identification (RFID) tags in its inventory, but there's little danger that this system could be used on any city-, state- or country-wide government tracking system. The beauty is that, given the low-power, low-bandwidth system scaling beyond a few dozen devices would be impractical. The limited range, while perfect for the individual user would be wildly ineffective when attempted on a large scale.

Personal networking, wireless, peer-to-peer, RFID, identity management — if Wozniak could only wrap it up in a "Web services" envelop he would have all of today's hottest buzz words in one small, relatively inexpensive product which, of course, is a pretty good description of Apple Computers twenty-some years ago. It worked then, it could work again.

Kearns, a former network administrator, is a freelance writer and consultant in Silicon Valley. He can be reached at wired@ vquill.com.

Tip of the Week

The U.S. and many European governments also soon will be embedding machine-readable tags — these containing biometric descriptions. New U.S. laws require **machine-readable passports with biometric data** to more readily identify people entering the country. See www.nwfusion.com, DocFinder: 6930, for links to more details.

IBM adds grid computing to WebSphere

■ BY PETER SAYER AND JENNIFER MEARS

When IBM ships the latest version of its WebSphere Application Server later this month, it will include a grid computing feature that is designed to let users harness their computing resources into a virtual system that will grow and shrink according to demand.

The software monitors workload and automatically routes traffic to servers based on utilization. Users can run WebSphere applications on a server cluster that can share workloads, rather than attributing fixed functions, such as serving Web pages or handling back-office transactions, to particular machines, says Dan Powers, IBM's vice president of grid computing strategy.

"It's about the ability to balance Web server workloads in a more dynamic way," Powers says.

The technique allows load balancing between applications and lets systems managers set the parameters under which servers will take on a new role, he says.

Analysts say the new technology is another step in IBM's effort to deliver on-demand computing, an architecture in which the IT infrastructure acts as a pool of resources that can respond dynamically to business demands.

"WebSphere ... really is the foundation where all these business process executions occur and is a center point for integrating legacy applications," says Pierre Fricke, executive vice president at consulting firm D.H. Brown Associates. "WebSphere is a natural control point to distribute this workload around the grid."

Corporations are only now starting to embrace grid computing, which historically has been used for technical and research applications within the academic and scientific communities. IBM announced its focus on building corporate grids in January and now has grid offerings for customers in the aerospace, automotive, financial markets, government, life sciences, agricultural chemical, electronics, higher education and petroleum industries.

Driving adoption

IBM executives and analysts agree the grid computing feature in the Java 2 Platform Enterprise Edition-based WebSphere platform will help drive corporate adoption of the architecture, which links compute resources such as servers into one virtual system to let businesses capitalize on available resources.

"Once you're using Web services to connect your applications, grid computing can slip underneath that and make more efficient use of your infrastructure," Fricke says. "Customers can now look at [WebSphere] as providing the tools to put grid computing into a Web services environment."

Version 5.0.2 of WebSphere Application Server Enterprise Edition also will add a feature called Automatic Backup Clusters, letting customers designate a server group to act as a backup for another cluster, without the need to write code or get involved in complex configuration, the company says.

With the new WebSphere Performance Advisor tool, users can seek advice on how best to configure a cluster to balance loads. The tool advises managers how to set parameters to handle different levels of network traffic, according to the company.

Over the next year, IBM says it hopes to improve the load-balancing technology to take on load balancing for other high-performance computing applications, Powers says. For example, a stockbroker's online trading system could borrow capacity from a back-office cluster performing portfolio analysis and optimization during busy trading hours, and then take on batch processing of the portfolios after trading hours, he says.

Machines swapping processing capacity in this way needn't necessarily be closely connected. "These kinds of applications are usually data light and processing heavy. There's not a lot of bandwidth needed," Powers says.

The new version will be a free upgrade for those already running the Enterprise edition. Otherwise, WebSphere Application Server costs $30,000 per processor, or $15,000 if upgrading from an edition other than Enterprise.

Sayer is a correspondent with IDG News Service's Paris bureau.

Foundry

continued from page 17

traffic based on Layer 4 server port information in packets, then sends traffic to the most available server. ServerIron also acts as an application switch, where it inspects Layer 7 application data in packets and applies traffic-handling policies based on more detailed criteria.

Besides XML support, TrafficWorks Ironware 9.0 includes faster packet processing for DoS attack prevention. Using Layer 4 packet inspection, ServerIron can identify typical DoS attacks that use large volumes of corrupted TCP messages and drop those packets before they reach a server. The new software speeds up ServerIron's TCP SYN and TCP ACK filtering to 1.5 million packet/sec, 15 times as fast as the previous software release.

The ServerIron product line netted Foundry about $44 million last year.

Smith says he expects the higher-scale security inspection will help the site run smoothly during normal usage and peak periods, such as when *Forbes* publishes its annual "Forbes 500" or "World's Richest People" lists.

The ServerIron line competes with Cisco's CSS Web and load-balancing switches, Nortel's Alteon Layer 4 to Layer 7 switches, F5 Networks' BigIP load balancers and Radware's line of load-balancing and application switches.

The ServerIron product line netted Foundry about $44 million last year — about 15% of its sales. The company held about 10% of the $210 million Layer 4 to Layer 7 switch market in 2002, according to Gartner. The company was second to Cisco last year in terms of Layer 4 to Layer 7 port shipments, with 18% of the 225,100 ports shipped, the research firm says.

Also new in the latest ServerIron software is the ability to load balance Internet links from multiple ISPs. In this role, the ServerIron would be deployed at the edge behind two routers with multiple ISP connections. The box then detects which of the two links is more congested and balances WAN and Internet traffic between the two links.

"This kind of feature is new to Foundry," and an important one, says Zeus Kerravala, an analyst with The Yankee Group.

WAN load balancing puts Foundry in with a new group of competitors, such as NetReality, Packeteer and Proficient Networks. "Foundry lately has tried to broaden its product functionally beyond switching, but without straying from its core competency," Kerravala adds.

TrafficWorks Ironware 9.0 is available as a free upgrade for ServerIron customers with support contracts. ServerIron switches start at about $12,000. ■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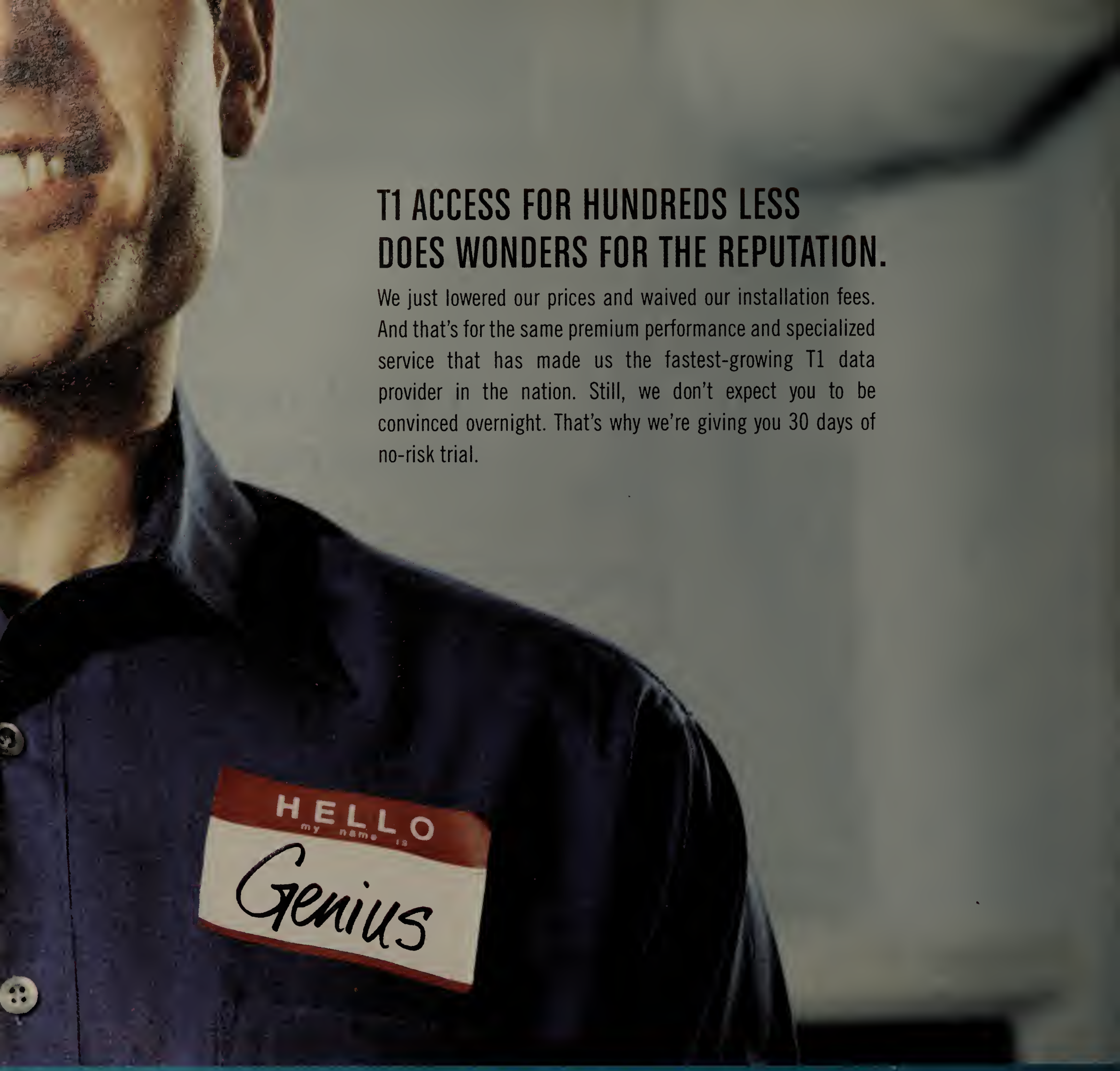

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■ WEB SERVICES

Short Takes

■ A new software tool from anti-virus vendor **Sophos** is designed to let customers aggregate virus-alert information in customized reports. Introduced last week, Sophos **EM Reporter** is a module in the Sophos **Enterprise Manager** suite that provides a way to graphically display information on incidents and virus alerts, integrating with Crystal Decisions' Crystal Reports software. EM Reporter uses data sent by Sophos anti-virus clients and relies on a company's existing Simple Mail Transfer Protocol infrastructure to send alert information. EM Reporter is available as a free upgrade for existing users of the Sophos Enterprise Manager suite and will be sold to new customers as a standard part of Enterprise Manager.

■ **Proofpoint** last week announced its first product: **Proofpoint Protection Server,** an enterprise-class anti-spam gateway that the company says uses a new generation of spam-spotting technology that is more accurate at spotting unwanted mail. Featuring separate modules for spam detection, content compliance and virus scanning, the Protection Server sits at the entrance to a corporate network and analyzes all e-mail message traffic. Like other anti-spam products, Proofpoint's spam-detection module uses anti-spam techniques such as blacklists, whitelists and heuristic pattern matching to spot spam e-mail. Unlike other products, however, the Proofpositive anti-spam module features a specialized anti-spam engine, which applies advanced statistical machine-learning methods to incoming e-mail. In addition to Bayesian analysis, which has long been recognized as useful for spotting spam, the Proofpositive engine throws lesser-known tools such as logistical regression and support vector machines to weed out spam. Proofpoint runs on Linux or Sun Solaris operating systems and uses the open source Sendmail product as its message-transfer agent. Pricing and availability were not announced.

Spam technology seeks acceptance

■ BY JOHN FONTANA

A proposed standard filtering technology originally developed to help end users organize messages in overstuffed in-boxes instead is gaining favor as a niche tool to help in the effort to stem the onslaught of spam.

Sieve, which became a proposed Internet Engineering Task Force Standard in January 2001, is a scripting language designed to let end users write e-mail filters, such as automatically sorting incoming mail into folders based on a sender's address.

Since the Sieve proposal however, the complexity of scripting and lack of support in standard clients has conspired to keep adoption low.

But dramatic changes in the messaging landscape, most notably spam, now appear to be casting Sieve in a new light.

With the spam explosion, companies have taken mail-filtering chores from the desktop to the IT level and deployed gateways or firewalls in an attempt to stem the blitz. For vendors, such as Vircom, Brightmail, ActiveState and Rockliffe, Sieve has become a tool that lets customers write customized filters for their spam engines and even share scripts.

It could be a new life for Sieve because end-user adoption also has been stymied by the fact that in-box filtering is mostly a power-user endeavor. Also, Microsoft Outlook, which has its own filtering technology and does not support Sieve, is now the default client for Microsoft's Exchange Server and IBM/Lotus Domino, which together account for more than 200 million e-mail seats. In addition, neither messaging server supports Sieve, which can be implemented on a server or a client.

Sieve, which at its heart is a scripting language, has never had an easy-to-use GUI for end users with little knowledge of high technology.

"E-mail overload has not been the result of receiving too much legitimate e-mail. It has been because of spam," says Tim Showalter, the author of Sieve and a member of the technical staff at Mirapoint. "So filtering is now happening at the corporate gateway and not the desktop for spam, anti-virus and content. That is more interesting to customers now." Showalter's own employer, Mirapoint, does not incorporate Sieve into its products.

Regardless, Showalter says Sieve is a success and a useable specification in its current form. Showalter still is working actively on extensions, including one that will let users set up out-of-office auto-replies when

See Spam, page 22

BMC lightweight mgmt. software gains some heft

■ BY DENISE DUBIE

BMC Software next month is scheduled to roll out a version of its agentless application and systems management product that promises to give customers more flexibility when it comes to monitoring local and remote enterprise resources.

Patrol Express 3.0 will offer customers faster installation and easier administration, BMC says. New features include Web transaction monitoring and critical alarms, which help customers better define the conditions and urgency of network events and alarms.

In Version 3.0, BMC incorporated Web transaction monitoring capabilities from its Site Angel offering, which lets customers test the performance and availability of their Web sites. The software can capture and replay Web transactions and then notify network managers if there are any abnormalities in site performance. Customers also can measure Internet latency by simulating transactions through more than 30 points of presence BMC has around the world.

The software also includes new alarm features that customers can use to more accurately define the conditions of a critical alarm. Upgraded reporting features show network managers the status of managed devices. Reports also include alert history and service measures metrics.

Oli Thordarson, president and CEO of Alvaka Networks, a professional and managed services provider in Huntington Beach, Calif., uses Patrol Express 3.0 in Alvaka's network operations center. As a potential channel partner with BMC, Alvaka also uses the software in service offerings to its customers. Alvaka, for years, cobbled together products from IBM, Computer Associates, Novell and Microsoft. And about three months ago, the company rolled out a pilot version of Patrol Express 3.0 internally, and recently it began deploying the software across customer networks.

"The product deploys without having to touch devices and applications at all the remote locations," he says.

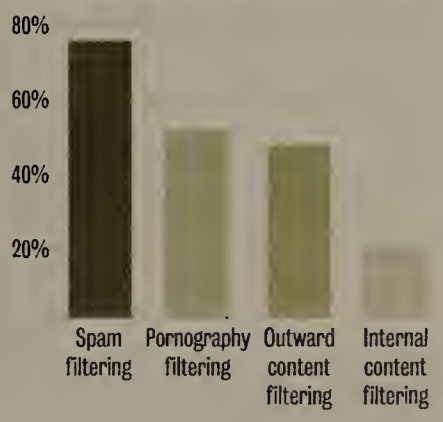
Thordarson says he's still working with the company to get the software to integrate better with more third-party monitoring and reporting tools. But he says installation is straightforward and requires little configuration. "We identify where we want

See BMC, page 22

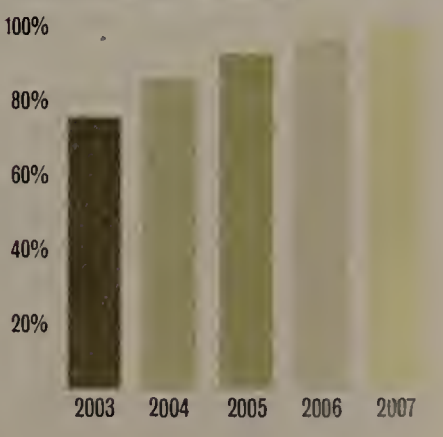
Finding a niche

E-mail filtering is becoming a must for companies, and a proposed Internet Engineering Task Force filtering standard called Sieve could find a new life because of the need.

Percentage of organizations that have deployed filtering technologies



Percentage of corporations with spam-blocking technology



SOURCE OSTERMAN RESEARCH

'NET INSIDER
Scott Bradner

A modest security proposal

The news that the U.S. Senate had cut all funding for the Department of Defense's research on its Terrorism Information Awareness program. That was a good thing to do, but I expect it was a futile gesture. Maybe it's time to just surrender to the inevitable and start planning for a life of transparency, for the people if not for the government.

The signs are all around us. TIA, which used to be known by a name that far better described its purpose: Total Information Awareness, is only the most public of the signs. This program was envisioned as being able to gather all the information available on everyone in the world. Well, actually not everyone — much of the world's population does not get anywhere close to the kind of electronic system that TIA would get its data from.

The asserted rationale of discovering terrorists is so transparently absurd that one is left with the inescapable conclusion that the real purpose is to create a detailed electronic history of everyone they can.

Tying together every sort of electronic tidbit you leave behind when you do anything these days with the about-to-be-omnipresent radio frequency identification (RFID) that will be part of everything you buy, wear or use will let the government know on a minute-by-minute basis what you're up to and who you are up to it with. Toss in the new airport scanner that shows you in your birthday suit, and the Mach-3 cam (see www.nwfusion.com, DocFinder: 6929) and its cousins, and the government will know much more about you than you do. I, for one, tend to forget where I was at a particular time of day a week or a month back. It would be wonderful to have this memory aid, but I suppose they will not let me see my own record so I'll have to make due with my mess of neurons.

I suppose the next step will be to add miniature microphones to the RFIDs so the government could listen in on your plotting to violate the "Keep off the grass" signs.

I admit that this would be a boon to a government. Society would be much safer if the government simply could push a button to find out who was last to be near that wad of discarded gum.

But the benefits do not stop at the government. Private industry, which is collecting most of the information that is planned to go into TIA, would be able to offer all sorts of new helpful services. For example, the logical extension of the Mach-3 cam is to check to see if you also need Grecian Formula hair dye — a box could leap into your shopping basket if you do.

If you have the same feeling of control that a rat in a fully transparent maze does, welcome to the club.

Disclaimer: Some Harvard students may feel like they are in a maze, but it's far from transparent. Anyway the above bad dream is my own (I hope).

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

BMC

continued from page 22

to put the agent, log on via a Web browser, download and install, and we are done. There is no configuration or rebooting or crashing servers or reloading network equipment," he says.

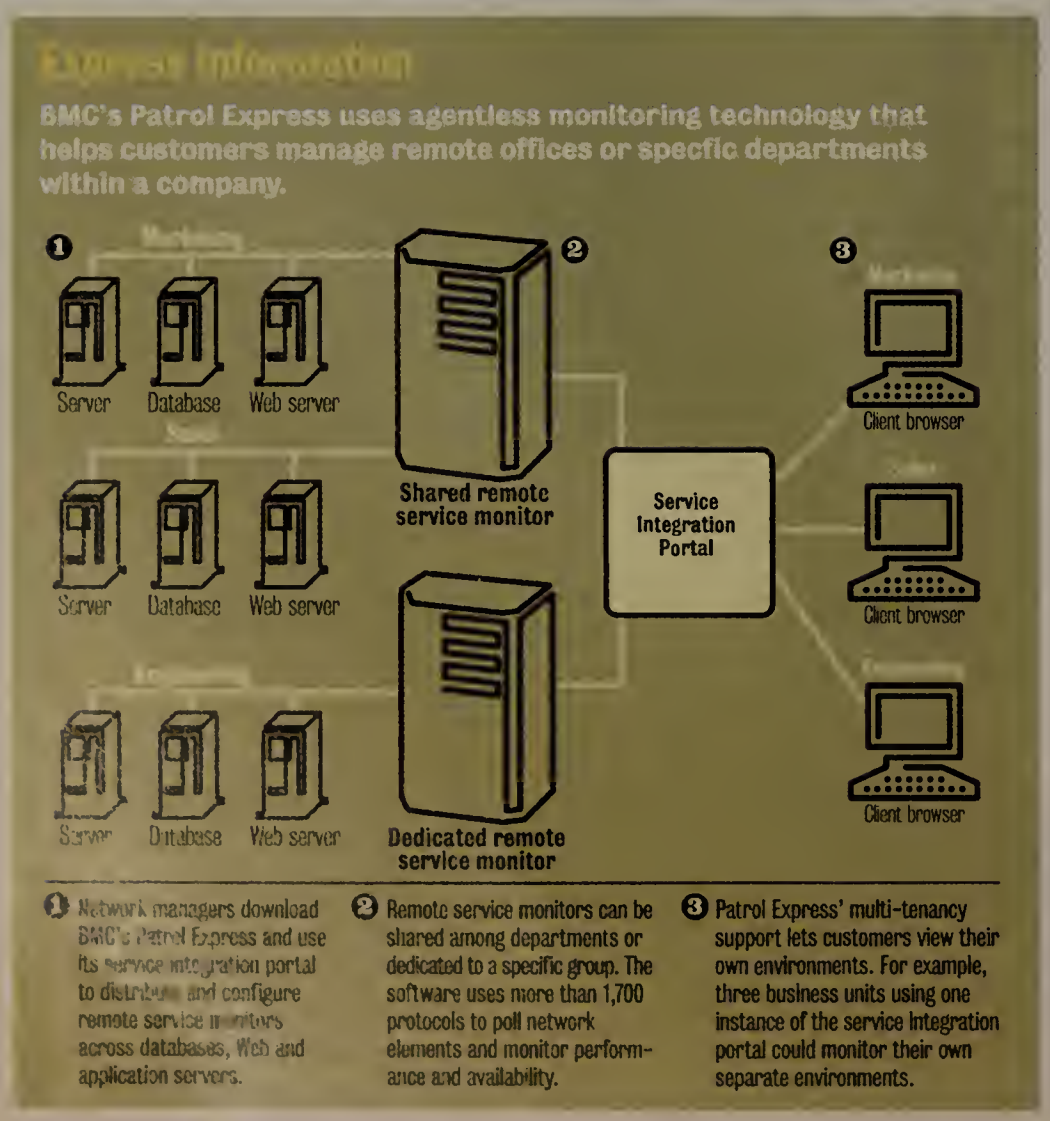
Server software, which BMC calls the service integration portal, is installed on a dedicated server. From there, network managers configure and distribute remote service monitors, or software agents that reside on shared and dedicated servers. Patrol Express 3.0 does not require users to deploy agents on each device they want to manage. One instance of the service integration portal can handle up to 500 managed nodes. The remote service monitors then use more than 1,700 protocols to poll network devices, servers, operating systems, databases and applications for performance and availability metrics.

Customers can use the service integration portal as their main management console. The software also lets individual users, executives and departments create personalized portals, which will give them access to and deliver only the information pertinent to the network devices that support them directly.

The software also is available as a service from BMC, in which customers would log on to BMC's service integration portal and download remote service monitors to manage parts of their network. They would then log onto the portal to receive reports.

Patrol Express 3.0 costs $15,000 for the service integration portal software, which can manage up to 500 network elements. For more coverage, customers can purchase additional software to monitor operating systems for $400, applications for $800 and network devices for $100 per device.

The monitoring features of the software also are available as a hosted service from BMC. The annual subscription fee for the service is based on the number of operating systems, applications and devices to be monitored. Operating systems cost $720, applications cost $1,440 and network devices costs $180 per device. ■



Spam

continued from page 21

away on vacation.

He also says Sieve remains a good partner for e-mail servers based on Internet Message Access Protocol, which store messages on the server where Sieve scripts can be executed for users who access mail from multiple clients.

Showalter says Sieve wasn't designed to solve the deluge of spam, which was only a trickle when he wrote the standard in the late-1990s. But some vendors have modified Sieve for use with their anti-spam engines to the surprise of Showalter.

Secure messaging vendor Vircom has enhanced the Sieve language and made it the foundation of its ModusSieve anti-spam engine, which it markets to ISPs and some corporations. Over the past year, the company says it has developed 13,000 lines of Sieve scripts, which are updated around the clock and augmented by scripts from Vircom customers who have formed the Vircom Anti-Spam Coalition.

"We are using Sieve in an unconventional manner," says Daniel Roy, product manager for ModusSieve. "We use it to work at the gateway level before messages reach the mail server." Roy says what is important is the sharing of scripts. "Sieve is an adaptive tool. We can quickly modify scripts to react to spammers and share those scripts throughout the coalition."

Sieve also is supported in products such as Brightmail's Anti-Spam engine.

"Our goal with Sieve is to give customers the ability to write custom scripts for our platform," says Ken Schneider, CTO of Brightmail. But Schneider says Sieve is not a fundamental part of Brightmail's anti-spam engine. Instead, it solves more site- or platform-specific issues, such as blocking certain attachments.

Rockliffe, which has implemented Sieve in the Web-mail interface of its MailSite Express messaging server, will use Sieve in anti-spam filtering that it plans to release in August. The product incorporates a policy editor from ActiveState's PureMessage anti-spam software. The Sieve-based policy editor has a GUI interface to mask the complexity of Sieve scripting.

"We think Sieve will be great for creating controls so users don't have to deal with junk," says Andrew Lochart, vice president of marketing for Rockliffe.

While Vircom, Brightmail, ActiveState and Rockliffe have applied Sieve to spam tools, they aren't the only ones to adopt the standard. A handful of products support Sieve, including Sun One Messaging Server, Critical Path's Messaging Server, Sendmail's Advanced Message Server and Cyrusoft International's Mulberry Internet mail client.

Users see the benefits and the limitations.

"Sieve is effective for where we are right now with 400 users," says Terry Lockwood, manager of IT for J&J Industries, a carpet manufacturer in Dalton, Ga. Lockwood and his IT staff have been writing Sieve scripts for their Rockliffe mail server for more than a year to block spam and viruses. "If we had 6,000 users we may look for another way to filter spam and viruses, but now the decision is based on economics." ■

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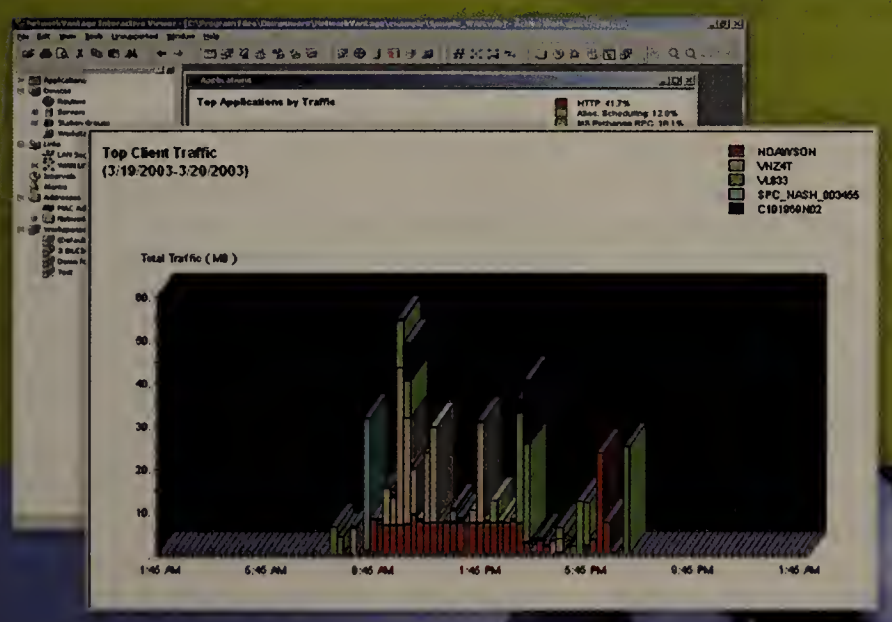

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Patch management burdens customers

■ BY ELLEN MESSMER

When it comes to patch management, there's no one-size-fits-all approach to doing a job no one wants to do: update software for new features, or the more troubling task, fixing a security hole before a hacker or computer worm finds it.

By all accounts, patching software is a disruptive, time-consuming process requiring IT departments to test any new software patch before applying it, scheduling downtime for machines to apply the patch and ensuring it doesn't "break" applications. Patching for security purposes also means managers have to be on constant alert for news of any new holes found in vendor products. This thankless task monopolizes large chunks of IT staff time, in spite of a growing array of products and services that can track machines that need patches and automate patch downloads from vendor sites.

At any rate, many organizations say they don't need commercial patch-management products to do the job.

"We have our own system for this," says Anthony McBride, IT network security analyst at financial services firm Principal Financial Group in Des Moines, Iowa. "It's a homemade system with a database of the server and applications we use for Windows, Solaris and Linux and what's been patched. And we monitor a list of open sources, like BugTrak, for information."

Because there are so many patches released by vendors, Principal Financial Group evaluates each one according to a risk category to determine which need to be applied immediately and which can wait for the next quarterly scheduled software maintenance. "You have to weigh the risk, and get into a lab and test that patch," McBride says.

Commercial patch management products can either be stand-alone patch products like those from BigFix, PatchLink, St. Bernard Software and Shavlik Technologies, or the patch component of systems management products from ConfigureSoft, Ecora, IBM Tivoli and LANDesk Software.

In any event, the idea of deferring patching based on risk is a common practice, according to network executives. That's because the number of vendor patch releases is skyrocketing as the number of newly discovered vulnerabilities increases dramatically.

"The number of software vulnerabilities has doubled every year since 1999," says Casey Dunlevy, manager of the CERT Analysis Center at Carnegie-Mellon University, which tracks this data as part of its ongoing effort in issuing the closely watched CERT security alerts.

"Last year it was 4,200 different vulnerabilities in software products, the year before it was 2,100," Dunlevy says. "And it looks like we'll double it again this year."

In organizations where Microsoft server and desktop products predominate, there's frustration that Microsoft hasn't made the patch management job easier.

"We need to put pressure on companies like Microsoft to build security in as a requirement," says Steve Malphrus, CIO at the Board of Governors and director of management at the Federal Reserve System. Malphrus expressed dismay about Microsoft's all-too-steady stream of software patches. The Federal Reserve doesn't use commercial patch management products, but the staff monitors vendors directly and patches according to risk when a new vulnerability is discovered.

Microsoft offers three basic ways to patch its own server and desktop applications: through its Server Management System (SMS) console for pushing software updates; via System Update Services, which lets the desktop "call home" to the Microsoft Web site for patches; and through the Microsoft Baseline Security Analyzer, a free online tool for vulnerability assessment.

The many paths to patch management

- **Do it yourself.**
  Keep track of server and desktop versions and latest patches in a database.
  Pros and cons: Can be seen as less expensive than buying patch management software, but might entail extra labor in terms of maintaining own application or monitorng for security alerts.
- **Buy it.**
  Use a systems management package that includes a patch-update component.
  Pros and cons: Ensures patches are an integral part of the overall computer inventory and configuration process, but can be more expensive than just buying a patch management point product. Also, unless the package includes specific security alerts, you might need to look elsewhere for this.
- **Employ tools.**
  Use a stand-alone patch management tool.
  Pros and cons: Might be less expensive than a systems management package, but needs close evaluation because products differ widely in the applications and operating systems they support and also whether they are "agentless" or "agent-based" software. Products are changing rapidly in terms of the degrees of automating the patch process.

But customers generally aren't impressed with Microsoft's tools. Microsoft's separate software teams for operating systems and applications churn out patches differently, so there's no consistency in how they're to be applied or how the patch is identified. Some customers say they have had rough experiences using SMS for patch management.

"We tried SMS but just couldn't get it to work," says Denny Cannon, PC specialist at Farm Credit Services of America in Omaha, Nebraska. "SMS wouldn't apply the patches at the right time when we wanted it to. When we called Microsoft, they just said, 'Well, that's SMS time. It does it when it's ready to, when it doesn't see traffic on the network.'"

FCSA instead is relying on the LANDesk Management Suite, which keeps track of the software installed on the organization's 950 desktops and 150 servers — all Microsoft — for patching.

At present, FCSA manually has to find the right patch at a vendor site and download it to distribute it via LANDesk to the right machines. But by year-end, LANDesk, which supports Windows, Unix, Linux and Macintosh, will add vulnerability assessment to its suite to scan for patch needs and automate the patch-download process as part of a new security service.

IT managers say complete automation to instantly download a new patch and distribute it would be the ideal, but experience leads them to believe it carries too much risk because patches can cause unexpected disruptions in applications.

"I haven't found any tool yet that I'd be comfortable with to allow complete automation of patch management," says Garett Redelings, systems administrator at Bio-RAD Laboratories in Hercules, Calif. The lab uses St. Bernard UpdateExpert to get word of new patches and have them downloaded and pushed out to 20 Windows servers and 120 workstations.

Redelings tests every patch first because he's found that Microsoft patches might work fine with Microsoft applications but can cause non-Microsoft applications to shut down.

Time-Warner Cable in Raleigh, N.C., uses the Security Update component in ConfigureSoft Enterprise Configuration Manager software to tackle the patch process. George Geddis, the IT department business analyst there, says procedures and policies need to be in place for patch management because some patches, particularly from Microsoft, don't work correctly when first issued.

Some patches also "undo" the effect of patches applied before. "Unless you take the time to do regressive testing, you could find new problems," Geddis says.

"I'm not a big fan of automated patch updates because it can break applications," says Pete White, security architect at M.D. Anderson Cancer Center at the University of Texas in Houston, which has a mixed server environment of Windows, Linux and Solaris. "Microsoft is not known for getting the patch right the first time."

The hospital has deployed host-based software from Symantec called Enterprise Security Manager across 200 servers to enforce security policy, and White says the ability of ESM to take a "snapshot" of each server gives him a way to keep track of what needs patching. The hospital also uses the Symantec DeepSight Alert Service to get notification of vulnerabilities that might necessitate an immediate patch.

Although managers remain wary of automated patch installation, some patch management vendors say they are intent on providing automation as an option.

In the fall Shavlik Technologies plans to release an automatic patch management agent for Microsoft desktops and servers. Shavlik, which currently targets only Microsoft products, plans to expand support to include Oracle and Apache.

A growing number of IT managers say patching, especially to fix security holes, isn't a tenable process and that new approaches are needed.

"You hold your breath when you're applying patches to see if they're breaking anything," says Eric Beasley, senior network administrator at Baker Hill in Indianapolis, which provides hosted loan-processing applications for the banking industry. "We handle patching at the service-pack level, not the hot-fix level. Patches have to be done in a specific order or you can undo some of the patches from before." ■

ServiceProviders

■ THE INTERNET ■ EXTRANETS ■ INTEREXCHANGES AND LOCAL CARRIERS
■ WIRELESS ■ REGULATORY AFFAIRS ■ CARRIER INFRASTRUCTURE DEVELOPMENTS

Sprint throws hat into Wi-Fi arena

■ BY DENISE PAPPALARDO

Sprint announced last week that it will offer Wi-Fi service throughout the U.S. to give travelers another wireless option when accessing the Internet.

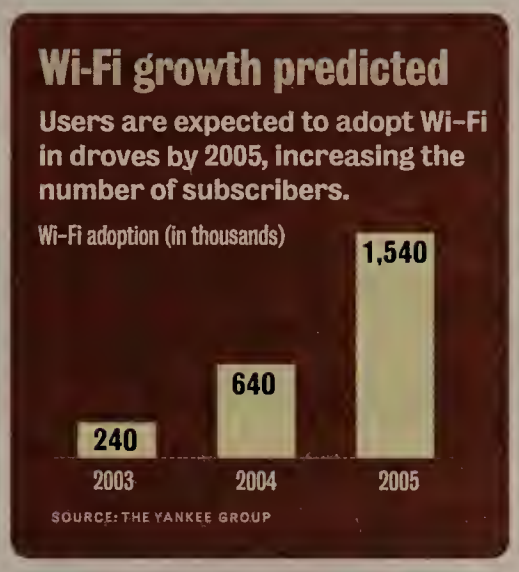
The service, PCS Wi-Fi Access, will run over a network of 2,100 access points. Sprint is teaming with Wayport and Airpath to create this network by year-end, the company says. Partners will supply 90% of the Wi-Fi hot spots, while Sprint will build the balance.

Sprint PCS customers will be able to couple the carrier's Wi-Fi service with existing PCS Vision wireless data service. Others could buy PCS W-Fi Access as a standalone product, says Jason Guesman, director of business marketing for Sprint PCS.

PCS Vision customers will be able to connect to the carrier's digital mobile network or its network of Wi-Fi access points. The carrier says its PCS Connection Manager software will let users easily see Wi-Fi and wireless data PCS connectivity options on the client software. Then the user can choose the most economical or preferred method. For instance, users might choose to connect via Vision, rather than Wi-Fi, because they are traveling in a cab. They might choose Wi-Fi if they have a layover and will be stuck in the airport for two hours.

This software will be available when the service launches, Guesman says.

Sprint plans to have 800 access points initially, with the remaining 1,300 coming online before year-end.



"Sprint obviously wants to position itself as a major Wi-Fi player," says Roberta Wiggins, an analyst at The Yankee Group. "They are leveraging roaming agreements to aggressively build out 2,100 access points."

The carrier is the third of the largest national service providers to lay out its plans for public wireless LAN support this summer. AT&T and MCI, legally known as WorldCom, launched their plans earlier this month.

While Sprint's announcement last week concentrates on the carrier's wireless customers, additional wireless to land-line data service announcements are expected. Sprint said in June that it would offer Sprint PCS access to its VPN and other landline data services. Sprint wouldn't get more specific on the timing of its additional wireless data service announcements.

Sprint says pricing information for the PCS Wi-Fi Access service will be available when the service launches sometime in the third quarter. ■

Short Takes

■ **Verizon** is withdrawing its opposition to **MCI's** reorganization plan in exchange for a settlement in a billing dispute between the two service providers. MCI, legally known as WorldCom, is paying Verizon $60 million to settle the issue, according to a motion filed with the federal bankruptcy court. Although Verizon is dropping its opposition to the carrier's reorganization plan, Verizon is calling for stiffer punishment for the company's fraudulent activities over a three-year period. The fraud totaled $70 billion. Verizon's views on MCI might not have changed, but with Verizon's backing MCI is more likely to emerge from bankruptcy this fall, as MCI executives have predicted.

■ Optical Ethernet equipment vendor **Atrica** recently announced that it raised $17 million in a new round of funding. Investors in Atrica's fourth round of funding include existing investors Accel Partners, Ascend Technology Ventures, Benchmark Capital, Challenge Fund, Innovacom, Gemini Israel Fund, Investor Growth Capital, JK&B Capital and St. Paul Venture Capital, and new investor Intel Capital, Intel's strategic investment program. Atrica says it will use the fourth round to satisfy worldwide demand for its optical Ethernet systems, especially in Asia.

FiberLink serves up SSL remote access

Provider to manage Neoteris gear for customers.

■ BY TIM GREENE

Next month, customers will be able to buy FiberLink Internet remote-access services that are protected by Secure Sockets Layer technology, expanding the provider's secure remote-access options beyond traditional IP Security VPNs.

Managed SSL Solution will give customers access to corporate networks via the Internet from any computer that has an SSL-enabled Web browser, and access will be secured by a server that proxies between the remote user and servers at corporate sites.

FiberLink will place Neoteris Instant Virtual Extranet (IVE) proxy boxes at customer sites and manage them. Remote users will authenticate to the box and be granted access based on policies preset by the customer.

The service might be attractive to support employees who want to work from home using their own PCs, says Prashant Vaidya, IT manager for biotechnology firm Qiagen in Valencia, Calif. The firm has more than 200 users signed up for FiberLink's IPSec VPN service. With SSL, the company would not have to issue client software to these machines, avoiding distribution and management burden, Vaidya says.

In addition, the SSL service would not require any reconfiguration of the company firewall because it uses only the standard SSL port, which generally is kept open, he says. Qiagen is considering installing a new firewall, and integrating it with the VPN service is a factor Vaidya says he has to consider in setting it up.

Dealing with clients for the VPN service will not be a major chore, he says, because FiberLink will handle updates to it. Qiagen installed the clients initially, and Black Ice personal firewalls were added to the VPN service later.

Neoteris has given FiberLink access to a new API it has developed for its IVE software to be integrated with software written by business partners. In the partnership with FiberLink, the API lets FiberLink software check that the remote machine has proper security configurations and then dictate whether the IVE software should allow access. The configuration check is already part of FiberLink's other services.

The companies say they are working on software that can place remote computers into four categories ranging from trusted to untrusted and to give a different set of access rights to each category. So policies could be set that if a single user logs on from a company-issued laptop, he would get access to a complete list of applications. If the same user logs on from an Internet kiosk, he would get access to a much-restricted set of resources.

SSL specialist Aventail and remote-access service provider OpenReach both offer SSL remote-access services, as does AT&T by reselling Aventail's service.

FiberLink also sells Internet access, but it will not be necessary to buy it in order to use the SSL service.

FiberLink will start selling the service next month and activate it in September. While pricing has not been set, the monthly fee will be linked to the number of simultaneous users the box will support. ■

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EYE ON THE CARRIERS

Johna Till Johnson

In search of elusive telco cost savings

"How can I reduce network costs?" If that question sounds familiar, you're not alone.

Telecom rates are no longer in freefall. The 20% to 25% year-over-year drop in rates that we saw during the mid-to-late '90s has vanished. Rates now are relatively stable, meaning next year you can expect to pay about what you paid last year, assuming you're consuming equivalent services.

Therein lies the catch: You probably aren't. Most companies have found bandwidth requirements are growing because of new applications and initiatives such as server and data center consolidation.

Unfortunately, companies often don't consider the network impact of deploying new apps or consolidating servers and data centers. For example, server consolidation typically results in relocating a server from across the LAN to across the WAN. That means traffic that used to be local (high-bandwidth, low-latency and virtually free) is now long-distance (low-bandwidth, high-latency and expensive).

The upshot? Users see decreased performance, and network executives see higher bills.

There's no magic bullet, but here are some guiding principles to reducing costs while maintaining or improving service:

Consolidate multiple networks. Companies often have dedicated networks for particular traffic types (voice, video, extranets or legacy applications). One firm we worked with had more than 30 networks, including dedicated extranets, an X.25 network that handled one legacy application, and multiple voice and data nets. Try integrating applications wherever feasible across a common infrastructure, and remember that cost-savings are cumulative: Combining voice and data might not show enough of a savings to warrant revising your network architecture, but toss video into the mix, and the picture might change.

Use quality of service and selective oversubscription to wring more performance out of existing links. On dedicated lines and with most VPN technologies (such as frame relay) you've already paid for the bandwidth so you might as well utilize it as much as possible. By deploying QoS at the access points, you can expedite the transfer of mission-critical apps even when the WAN is congested, while saving the bulk file transfers for slower periods. If you try this, make sure to benchmark application performance and network utilization first — then shoot for maintaining application performance while increasing utilization.

Explore compression. Most of us stopped thinking about compression back when we tossed out our V.32 bis modems. But compression is back, and a new generation of tools such as the SR products from Peribit can increase effective bandwidth up to 5X, according to Peribit's internal tests.

Renegotiate. Although rates have stopped dropping, if your contract is at least 18 months old, you can probably wring a few concessions from your service provider — perhaps by offering to throw more of your business their way. (But don't lock yourself into long-term contracts.)

Above all: don't give up. There are many ways to save, if you know where to look.

Johnson is president and chief research officer at Nemertes Research, an independent technology research firm. She can be reached at johna@nemertes.com.

Technology Update

■ AN INSIDE LOOK AT THE TECHNOLOGIES AND STANDARDS SHAPING YOUR NETWORK

IPSs instantly grant or deny access

■ BY MARC WILLEBEEK-LEMAIR

A surge of new security vulnerabilities has caused an increase in sophisticated attacks, generated internally and externally, that bypass traditional firewalls. Intrusion-prevention systems placed at the perimeter or on internal network segments can stop these attacks, providing a scalable front line of defense for vulnerable unpatched or misconfigured servers.

Whereas intrusion-detection systems monitor network traffic and send alerts regarding suspicious activity, they aren't designed to block attacks. IPSs thoroughly examine all packets that come through and make instant decisions on whether to grant access or block them.

An IPS is loaded with filters that halt attacks against all types of system vulnerabilities. When a new vulnerability is discovered, a filter is created and added to the IPS. Any malicious attempt to exploit these vulnerabilities is blocked immediately.

IPSs are capable of total flow inspection to detect all types of attacks that exploit Layer 2 (media access control) to Layer 7 (application) vulnerabilities. Traditional firewalls are limited to Layer 3 or Layer 4 inspection and cannot detect attacks at the application level that are contained within the packet payload.

The IPS packet-processing engine is based on a set of highly specialized, custom application-specific integration circuits. Total inspection of every bit in a packet is required. Deep packet inspection doesn't examine every single byte in a payload, so it could miss attacks.

Flow data inspection requires that the payload of each packet in a flow be reassembled. Then, the IPS device applies filters to the full context of the flow every time a new packet for that flow arrives.

Packets are classified and fully inspected against all relevant filters before being allowed to exit. The classification is based on packet header information such as source and destination IP addresses and ports, and application fields.

Each filter consists of a set of rules defining conditions that must be met to ascertain that a packet or flow is malicious. These rules can be extensive to ensure accuracy. When classifying traffic, the engine must assemble a flow payload and parse it into meaningful fields for contextual analysis. For example, a buffer overflow attack could require the engine to identify the reference to a buffered parameter at the application layer and then evaluate its characteristics to detect the attack.

To prevent an attack from reaching its target, the instant a flow is determined to be malicious the latest packet is dropped along with any subsequent packets belonging to the offending flow.

To detect traffic intended to exploit system vulnerabilities, a variety of filters is required. Some attacks such as known exploits can be detected with specific signatures or pattern-matching filters. Others, such as buffer overflows, require more-sophisticated filters that can be expressed with rules that utilize protocol- and application-level decoders. Finally, multi-flow attacks such as network sweeps and packet flooding require filters that gather statistics and expose anomalies over an aggregation of flows.

The filter engine combines pipelined and massively parallel-processing hardware to perform thousands of filter checks on each packet simultaneously. Parallel filter processing ensures that the packet continues to move through the system quickly regardless of the number of filters applied. This hardware acceleration is critical because traditional software solutions must check filters serially and consequently sacrifice performance.

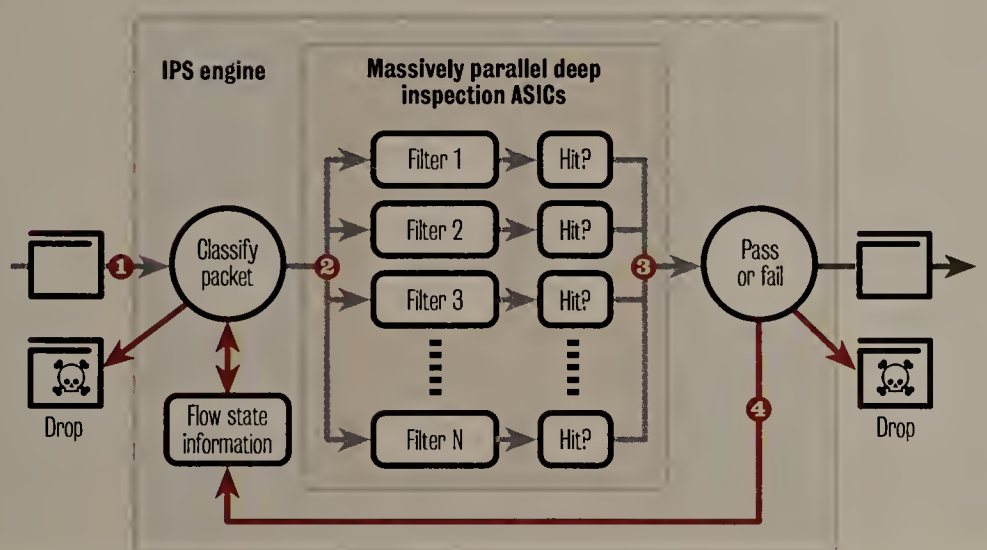
The IPS is a transparent device and becomes part of the link it splices. To avoid becoming the weak link, the IPS is equipped with intrinsic redundancy and failover mechanisms to ensure the network will continue to operate in the event of a failure.

In addition to serving a front line of defense, IPS is also a network cleansing tool that eliminates malformed packets and controls non-mission-critical applications to protect bandwidth. For example, IPSs have been effective in stemming the illegal transfer of copyrighted files through peer-to-peer file-sharing applications.

Willebeek-LeMair is CTO for TippingPoint Technologies. He can be contacted at marc@tippingpoint.com.

■ HOW IT WORKS | Intrusion-prevention systems

IPSs protect against network attacks by examining packets and blocking malicious traffic before it can go any further.



1. Each packet is classified based on header and associated flow information.
2. Based on the packet classification, the relevant filters are applied in the context of the packet's flow state information.
3. All relevant filters are applied in parallel and if any packets match, they are tagged as a hit.
4. A packet that resulted in a hit is discarded, and its related flow state information is updated to discard the rest of the flow.

Ask Dr. Internet

By Steve Blass

Are there any open source or shareware .Net compiler and Integrated Development Environment projects that give alternatives to Visual Studio .Net for beginning with C# and .Net programming?

You can get the Microsoft C#, C++ and Visual Basic .Net compilers free by downloading the .Net Software Development Kit directly from Microsoft. This provides basic command-line development capabilities, and includes several examples that show how to use each language for part of a project and then integrate the pieces. Mono is a CLI-compatible open source C# compiler for Linux and other systems, available at www.nwfusion.com, DocFinder: 6932. It can produce software using Linux that will run in the Windows .Net environment. To get an IDE to go with the compiler(s), visit SharpDevelop at DocFinder: 6933. This is a free open source IDE for the .Net platform that supports C# and Visual Basic software development, and includes a form designer and basic XML integration support. Another IDE is Eclipse (DocFinder: 6934), a Java IDE platform from IBM and others. By installing the Improve C# plug-in at DocFinder: 6935 or the Eclipse Project CDT plug in, you can compile and build .Net software.

Blass is a network architect at Change@Work in Houston. He can be reached at dr.internet@changeatwork.com.

GEARHEAD INSIDE THE NETWORK MACHINE

Mark Gibbs

Sharing with Samba

A couple of weeks ago we threatened to discuss Samba, the open source freeware implementation of the Server Message Block protocol. Well, it was no idle threat. Here we go ...

Samba is a remarkable piece of engineering. It provides directory tree browsing and sharing; disk, file and printer sharing; Windows Internet Name Service (WINS) resolution; and Windows domain client authentication. It runs under Linux, Unix, VMS and Mac OS X.

What is interesting is that where high performance is necessary, Samba under Unix (which is known to be a very stable and robust pairing) has been benchmarked to outperform Windows Server 2000 on identical hardware by a factor of 2 to 1. It also requires no client licenses and is well-documented. In short, Samba is an awesome service tool for heterogeneous networks.

First, what is Server Message Block (SMB)? To answer this we need to go back to 1984 when IBM released the Network Basic Input/Output System (NetBIOS) as the protocol for low-level file access across IBM PC or Token Ring networks. We'll skip over a chunk of history here and jump to 1987 when the IETF published RFC 1001 and 1002, which defined NetBIOS over TCP/User Datagram Protocol (UDP) transport, otherwise called NBT. NBT defines the naming, datagram service and session service.

All of the preceding discussion of NetBIOS is important because that is the transport for the exchange of SMB requests and responses. The SMB protocol was created by IBM in 1985 for LAN Manager and essentially split out the file access mechanism from the lower-level services NetBIOS.

And there's isn't just one version of SMB (of course) — the protocol is covered by multiple standards. The versions that interest us most are NT LAN Manager 0.12 and the Common Internet File System (which Windows 2000 and XP use). Interestingly, all versions of SMB are backward-compatible, and a single network can support any mix of versions simultaneously.

SMB servers are computers that provide access to resources — disk storage, files and printers — that can be shared with SMB clients. And at any given time a machine can be a server, a client or both simultaneously.

Establishing an SMB connection to a shared resource (usually simply called a "share") is a four-step process: First, a NetBIOS session must be negotiated and set up; next, the SMB protocol that is to be used must be negotiated; the session parameters must be set; and finally, a "tree connection" to the resource must be made.

Negotiating a NetBIOS session requires that computers first register their name, workgroup and resource type (actually each computer registers its name multiple times — one for each resource it offers). Registration can be done with a NetBIOS Name Server (a computer that acts as a central authority for NetBIOS name registration and resolution) or without (in which case each computer is responsible for reporting its IP address when it receives a broadcast request for its NetBIOS name).

In a Windows network, NetBIOS Name Service is provided by WINS if there is a Win 2000 or NT server available and configured to provide WINS. Now under Windows a WINS server can be a primary server (that is the one that is active) or a secondary server (intended to take over name serving if the primary becomes unavailable). Note that Windows WINS servers automatically synchronize their name data regularly.

While you might assume that peer-to-peer address resolution is less efficient and generates more traffic, the overhead is minimal. On the other hand, a centralized NetBIOS Name Server is more efficient. Samba can provide a primary WINS service but cannot act as a secondary WINS server or provide synchronization with secondary Windows WINS servers.

Resource types include the two resources that matter most to us: the Standard Workstation Service and the Fileserver (which also can provide print service). When a name is resolved the resource type also is returned so the requestor can determine the target machine's capabilities.

There's a lot more to say about NetBIOS operations but that's the topic of a separate column. For now, we'll leave it that a session can be established and we're ready to negotiate the SMB protocol. But you'll have to wait until next week for that.

Start you own session with gearhead@gibbs.com.

CoolTools

Quick takes on high-tech toys

By Keith Shaw

Sony goes wireless with new Clie PDA

Sony recently launched its latest Clie PDA, the PEG-UX50, integrating wireless LAN (802.11b) and Bluetooth technologies. The $700 PDA will be available in September, although it can be pre-ordered at the company's Web site (www.sonystyle.com/clie). Sony also is releasing a Bluetooth-only version of the Clie (the PEG-UX40), which will cost about $600.

The devices have an integrated digital camera, voice recorder, digital audio player and high-resolution color screen with support for landscape orientation. It includes the NetFront Web browser for viewing of HTML-based Web sites.

The integrated Wi-Fi on the UX-50 also includes a software sniffer that detects Wi-Fi signals and automatically sets up the connection, Sony says. The Clie includes a new processor called the Handheld Engine that features the company's Dynamic Voltage and Frequency Management technology to maximize battery life. Depending on the application, the processor automatically operates at a frequency that draws a minimum of power supply voltage by monitoring its operation speed, Sony says. Other features include 29M bytes of internal memory (for storing video and other data files), and a Memory Stick Pro slot, which supports Memory Stick Pro and Memory Stick cards.

Sony's new Clie PDA comes with 802.11b and Bluetooth technologies.

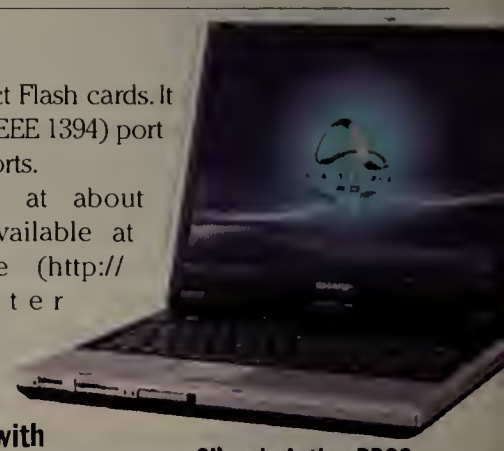
Sharp adds DVD burner to its latest notebook

Sharp last week announced enhancements to its Actius RD notebooks. The RD20 is a desktop-replacement notebook that includes increased processor speeds, extra memory, upgrades to video processors and memory, and a DVD burner.

The RD20 comes with an Intel Pentium 4 3.06-GHz processor, 512M bytes of DDR SDRAM (upgradable to 1G byte), a 60G-byte hard drive and an NVIDIA GeForce 4 440 Go graphics processor with 64M bytes of memory. It has a 15-inch XGA (1,024-by-768-pixel) LCD screen and a "one-touch" button that improves brightness for movie watching or game playing. The lower-brightness setting can be used to run normal office applications. The notebook also includes Sharp's DVD optimization software, sharp-fx, a module for the InterVideo WinDVD player that adjusts image contrast.

The RD20 features integrated 802.11b wireless connectivity, and expansion slots that support Memory Stick (the first non-Sony notebook with this), Secure Digital, SmartMedia and Compact Flash cards. It also has an i.Link (IEEE 1394) port and four USB 2.0 ports.

The unit starts at about $2,500, and is available at Sharp's Web site (http://sharp.smartermall.com).



Sharp's Actius RD20 includes a one-touch screen brightener.

Toshiba gets Media-savvy with new notebooks

Toshiba last week got into the 17-inch wide-screen notebook arena with its first notebook, which includes Windows XP Media Center Edition. The Satellite P25-S607 includes a wide-screen display with 1,440-by-900-pixel resolution, and can record television.

The notebook also has integrated wireless capabilities, and 802.11a and 802.11b are supported. It includes Toshiba's ConfigFree software, which aims to make managing wireless connections easier.

The P25-S607 includes an Intel Pentium 4 processor (2.8 GHz) with Intel's Hyper-Threading Technology, 512M bytes of RAM (expandable to 2G bytes), 60G bytes of hard drive space, a DVD multi-drive, NVIDIA GeForce FX Go5200 graphics card with 64M bytes of memory and a Harman Kardon sound system. Expansion slots include a Secure Digital slot, i.Link (IEEE 1394) port, four USB 2.0 ports, integrated TV tuner, V.92 modem port, 10/100 Ethernet port, S-Video TV output and infrared ports that include an optional Toshiba remote control.

The notebook is expected early next month for about $2,700. Go to Toshiba's Web site (www.shoptoshiba.com) for more details.

Shaw can be reached at kshaw@nww.com.

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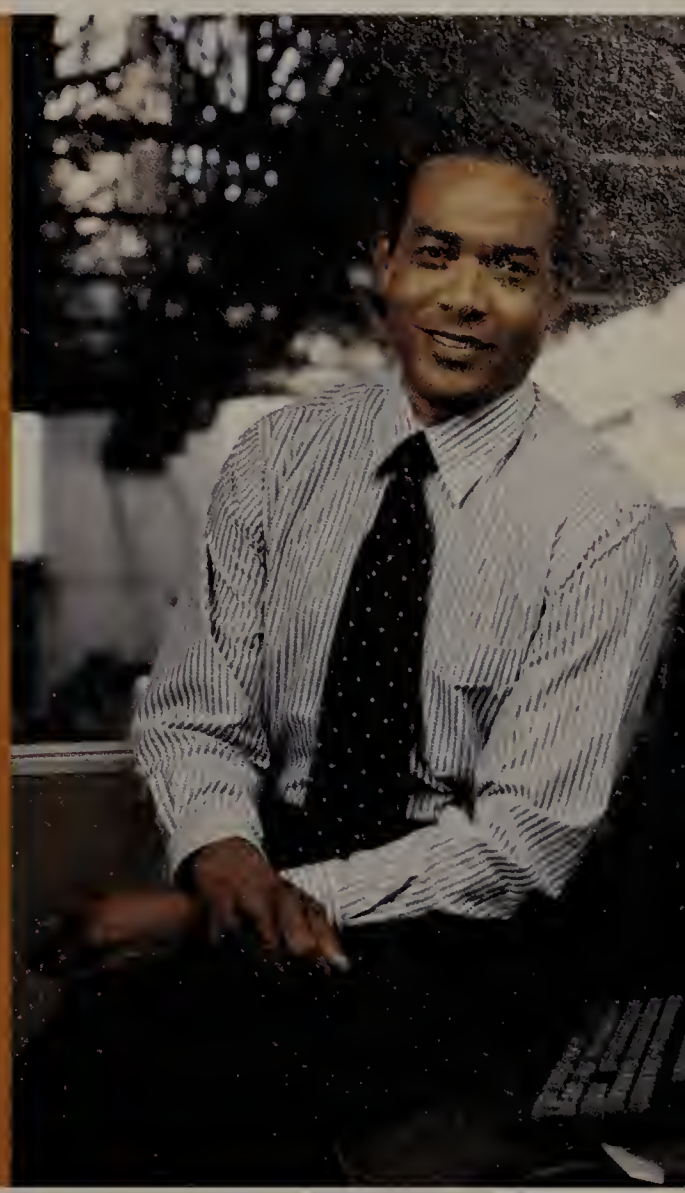

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IBM recommends Microsoft® Windows® XP Professional for Business.

Warranty Information: For a copy of applicable product warranties, write to: Warranty Information, P.O. Box 12195, RTP, NC 27709, Attn: Dept. JDJA/B203. IBM makes no representation or warranty regarding third-party products or services. *Prices do not include tax or shipping and are subject to change without notice. Reseller prices may vary. *Public access not available in all areas. Access fees may apply. ²Requires download of client software. ³Based on IEEE 802.11b. This wireless LAN product has been designed to permit legal operation worldwide in regions in which it is approved. Operation on channels 12-14 is not permitted in all regulatory regions of the world. Consequently, the wireless LAN feature is limited to operate on channels 1-11 and will not support channels 12, 13 and 14. This product has been tested and certified to be interoperable by the Wireless Ethernet Compatibility Alliance and is authorized to carry the Wi-Fi logo. ⁴For ThinkPad and NetVista models without a separate video card, memory supports both system and video. Accessible system memory may be up to 64MB less than the amount stated, depending on video mode. ⁵GB = 1,000,000,000 bytes when referring to storage capacity. Accessible capacity is less; up to 3GB is used in service partition. ⁶These model numbers achieved eTesting Labs, Inc.'s BatteryMark™ 4.0.1 or the Ziff Davis Media, Inc.'s Business Winstone® 2002 BatteryMark Version 1.0 Battery Rundown Time of at least the time shown. This test was performed without independent verification by the VeriTest testing division of Lionbridge Technologies, Inc. ("VeriTest") or Ziff Davis Media, Inc.; neither Ziff Davis Media, Inc., nor VeriTest makes any representations or warranties as to these test results. Winstone is a registered trademark and BatteryMark is a trademark of Ziff Davis Publishing Holdings, Inc., in the U.S. and other countries. A description of the environment under which the test was performed is available at *ibm.com/pc/ww/thinkpad/batterylife*. Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning and other customer preferences. Includes battery and optional travel bezel instead of standard optical drive in Ultrabay bay, if applicable; weight may vary due to vendor components, manufacturing process and options. Thinness may vary at certain points on the system. ⁸Some software may differ from its retail version (if available) and may not include user manuals or all program functionality. Software license agreements may apply. ⁹Telephone support may be subject to additional charges. If a machine is listed as having "Onsite service for select repairs" or "Limited onsite service" this means that onsite service is available only for the replacement of select parts. For all other warranty repairs, IBM will provide the customer a replacement part for customer installation. The parts for which onsite service is available varies by machine, but may include the processor, power supply,

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EDITORIAL

Beth Schultz

Looking for innovation that matters

In a scant four months in late 2001, insurance firm Royal & SunAlliance USA upgraded 7,000 Windows 95 PCs to XP while simultaneously rolling out Active Directory as the core of a new identity management system, switching to a new software distribution server and implementing self-service password management. In the process, the company saved $1.5 million.

The network infrastructure team at R&SA USA jumped through hoops to make this $3.2 million project a reality — and jumped right into the spotlight as our 2002 User Excellence Award winner. The project is a great example of how innovative use of technology can solve a business problem, and then some.

No doubt many of you have faced down tricky business challenges by applying network technology in inventive or particularly effective ways. And in doing so maybe you've saved the company a bundle; drastically improved employee productivity; made it possible to strengthen ties to customers, suppliers and other business partners; or otherwise improved corporate operations.

If you think your network project is worthy of broad recognition and deserving of the Network World User Excellence honor, we encourage you to enter this year's competition. Think about joining the ranks of prestigious winners such as American Airlines, Ford Motor, Olsten Staffing Services, Prudential Financial, R&SA USA and the many other companies we've recognized in the 18 years of this competition.

To enter your project in the 2003 User Excellence Award competition, go to Network World Fusion (www.nwfusion.com, DocFinder: 6936) and fill out a nomination form by Aug. 29. As always, we will evaluate submissions based on the business case, technology choice and core benefits. We want to know how your network meshes with your company's goals and how the project contributed to the organization's bottom line.

If you win, we'll tell your story in the Power Issue, the special year-end *Network World* issue that publishes Dec. 22-29. In short, you will receive industry recognition for your accomplishments. And what could be better than that?

— Beth Schultz
Editor, Signature Series
bschultz@nww.com

opinions!

The winner: Ethernet

Kevin Tolly's column "Ethernet at 30" (www.nwfusion.com, DocFinder: 6922) is a hoot. In it he pretends to offer a stunning exposé of the well-established fact that today's Ethernet bears little resemblance to the first Ethernet, which Dave Boggs and I started building in 1973. This fact is so well-established that it is grandly amplified in the story "Ethernet: It isn't just for LANs anymore" (DocFinder: 6923), only 16 pages later in the same issue.

Tolly has written a series of columns over the years endlessly defending various token rings, including FDDI's and IBM's. And now when even IBM has given up on its token ring, Tolly drones on. His latest column is just more defensive gotcha against Ethernet. Kevin, wake up: Ethernet has won.

Bob Metcalfe
Ethernet inventor
Boston

Hatch and copyrights

Regarding Mark Gibbs' column "Sen. Hatch and the record industry's jihad" (DocFinder: 6924): While I don't download music, I can see why many people do. It's a classic case of shareware many people have grown up with. Add to this mindset the violation of Article 1, Section 8, Paragraph 8 (limited-time copyrights and patents) of the U.S. Constitution by Congress and you can understand why people have no problem making copies of "copyrighted" songs. Sen. Hatch ought to read what the Constitution says about copyrights and patents, and stop trying to create perpetual copyrights and patents.

Donald Laster
West Long Branch, N.J.

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

Style over substance

Regarding "Trade shows look to lure buyers, not big turnouts" (DocFinder: 6925): Please, please tell me that cdXpo Chairman Jack Powers' quote about "some white guy with a Power Point droning on" was a misprint of some type. I'm all for shaking up the establishment and going out on a limb to promote your product, but some of us white guys prefer substance over style. Lotsa luck with your show; I'll continue getting my information from Comdex.

Mark Russell
IT analyst
DSC Logistics
Huntersville, N.C.

Gates the spammer

I can't understand why Network World gives Bill Gates a halo and labels him a spam fighter (see "The Good, the Bad, the Ugly," June 30, page 8).

Microsoft is bragging about suing 15 spammers, but at the same time the company has an army of lawyers in Sacramento fighting a tough California anti-spam bill (SB12) introduced by State Senator Debra Bowen. Bowen claims that "they [Microsoft] don't want to ban spam — they want to license it and make money from spammers."

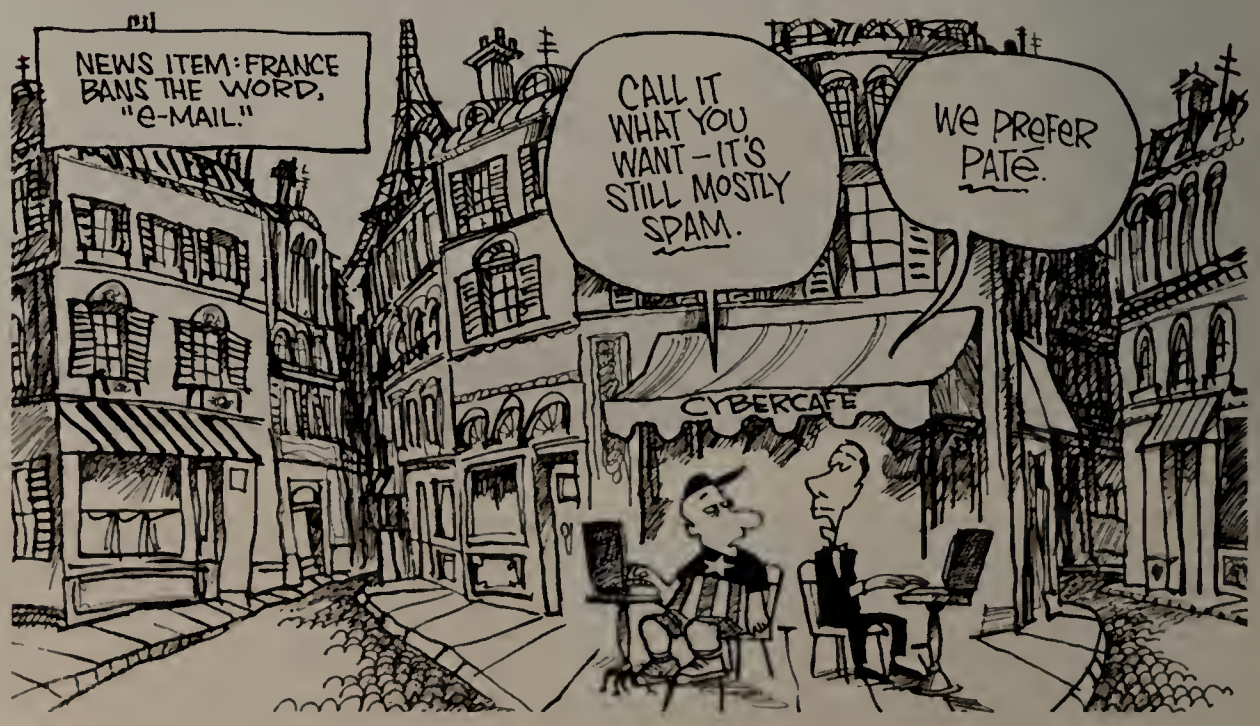
Robert Morrisette
San Jose

Toothy legislation

Regarding "Calif. breach-disclosure law raises questions, concerns" (DocFinder: 6926): It's about time lawmakers passed a law with real teeth in it that will help curb identify theft by forcing companies that utilize insecure products and methods to be held accountable. This will result in a win-win situation for everyone.

Morris Hood
Palo Alto

More online! www.nwfusion.com Find out what readers are saying about these and other topics. **DocFinder: 6921**



PATCH MANAGEMENT

Peter Tippett

Security is not a quilt, so let's patch less

By the time you finish reading this column, another alert will have been issued or new patch code posted regarding the latest vulnerability that has been deemed "critical" by one of your vendors. From the moment new vulnerabilities appear, application vendors work frantically to develop an effective patch, which their customers then rush to test and implement. This race is repeated weekly, daily or even multiple times per day, creating a vicious cycle in which IT personnel spend too much valuable time patching systems.

Patch-mania has spawned a group of products that help companies manage their patching efforts. Unfortunately, by relying on a patch-management system to fight the vulnerability battle, you're likely to lose the security war. I'm not implying that patch-management systems cannot be effective, because some are. The problem is the underlying approach to security that necessitates these systems. (For more information on patch management, see related story, page 24.)

Today's approach to patching is the equivalent of every person in the U.S. immediately testing and contemplating an inoculation for every known disease, without respect to whether they are likely to be exposed, or to the health cost if they are exposed. This approach is not only time-consuming and costly, but also nonsensical. Do we really need a management system to inoculate every U.S. citizen for typhoid? No. Humans are vulnerable to typhoid and the cost of infection could be very high, but the disease poses no threat to most people living in the U.S.

Before patching, companies need to investigate not only whether they are vulnerable to attack or infection, but also the likelihood of attack or infection (threat) and the resulting impact (cost). According to research conducted by TruSecure, the average Global 2000 corporation can reduce the number of patches that are short-term concerns to less than 4% of those issued simply by reconfiguring its existing security resources properly and taking a more proactive stance on security. This means that 96% or more alerts and patches from technology vendors are not crucial and carry no near-term security risk to most companies.

There are even some instances where a company is vulnerable — the threat level and cost of infection are high — but patching still is not the answer. Aggressive patching ranked last of the seven measures that actually worked to protect companies from the SQL Slammer worm that struck earlier this year. The other six protective measures were all proactive and generic — and all were much easier, less expensive and more effective against not only the Slammer worm, but against the majority of attacks.

Isn't it time companies realize that throwing more money and resources at a problem that is only getting worse is not the answer? Don't security practitioners understand that now's the time to take a proactive stance and address only vulnerabilities that pose the greatest security risks? If the answers to these questions are "no," it must be time to patch again.

Tippett is CTO of TruSecure and a member of the Presidential Information Technology Advisory Committee. He can be reached at ptippett@trusecure.com.

Isn't it time companies realize that throwing more money at a problem that is only getting worse is not the answer?

INDUSTRY COMMENTARY

Frank Dzubeck

Carrier services: A public utility?

It's time to start treating carrier services as a public utility, similar to transportation, water and electricity. Large corporations expect that, like a public utility, their communications transport will be always on and always available to users. To get this degree of service, they pay for private line or fiber connectivity. At most two carriers — an incumbent local exchange carrier and interexchange carrier — supply a single service, and testing is largely automated. End users take guaranteed redundancy and sufficient capacity for granted as part of the carrier service offering and the company's internal infrastructure.

The same is not true in the small and medium-sized business (SMB) and small office/home office (SOHO). In these environments, carrier switched services, which are only sometimes on and sometimes available, comprise the majority of voice and data connectivity. In this world, three or more carriers — ILEC, ISP, IXC or competitive local exchange carrier (CLEC) — can provide one service. Cost is lower, as is the quality and availability of service.

Most businesses are not large companies; they're SMBs and SOHOs. These users get ulcers every day with respect to service quality and availability. The main problem is the age and documentation level of the existing wire-line plant within the ILEC and customer premises, which makes wire replacement and repair a time-consuming nightmare. The second problem is the lack of remote automated test tools that would help solve inter-carrier finger-pointing problems. A third problem is slow user response time caused by over-subscription or limited trunk capacity. More carrier problems involving customer provisioning, complaint resolution and escalation procedures are rampant.

When confronting carriers with these problems, we're apt to be told "You get what you pay for." I can't imagine receiving such a response from a public power company. The world of computing is rushing headlong into on-demand services. The world of data communications, on the other hand, is limping into the world of shared use.

Almost all public utilities are regulated and serve the public good, as well as earn profits for their shareholders. Carriers are regulated only with respect to data transport, not services, and traditional switched voice services. In data communications industry parlance, a "service" is a VPN, DSL, Internet access, e-mail, managed customer premises equipment and, in the future, IP voice. There's the rub. SMB and the SOHO customers are constantly looking for ways to decrease costs, increase throughput and outsource more responsibility to the carrier. The carrier is looking for ways to sell additional profitable services in a competitive marketplace. The carrier has carte blanche to offer as much or as little as necessary to meet minimum availability, quality or support requirements. This maintains high profit levels for services at the expense of customer satisfaction.

The solution to these problems is limited regulation of carrier communications services. The ILECs would receive all rights of ownership, including "pass through" wholesale pricing of local loop and premises copper. In return, the ILECs would document and make available for review all wire-line use and availability, and upgrade the plant to meet automated repair, capacity and sparing needs.

Mandatory carrier levels for quality, availability and support, along with common escalation, coordination and outage compensation procedures on a service-by-service basis, would need to be set and monitored. Finally, in order to promote competition and avoid predatory marketing practices, services would become infrastructure independent as layered options available from the ILEC, CLEC, IXC or ISP over commodity transport.

Something must be done soon to create a pubic utility for communications services. If not, the profit-driven vision of an interconnected and productive virtual community of consumers and businesses using utility-based, on-demand resources will never come to pass in the U.S.

Dzubeck is president of Communications Network Architects, an industry analysis firm in Washington, D.C. He can be reached at fdzubeck@communetarch.com.

The carrier has carte blanche to offer as much or as little as necessary to meet minimum availability, quality or support requirements.

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NetworkWorld Review

COLLABORATIVE WORKSPACES

Working together in virtual facilities

■ BY CHRISTINE PEREY AND TRAVIS BERKLEY, NETWORK WORLD GLOBAL TEST ALLIANCE

Have you ever tried working on a project with someone on another campus, or in another state or country? You probably spent hours on the phone, trying to describe what you were looking at or thinking about. If you were lucky, you might have been able to send files through e-mail. Take heart — there is a better way.

Collaborative workspaces are secure, virtual "rooms" designed to enhance the exchange of information among a group of workers (also known as a team). Searching the market has led to the identification of dozens of companies with a variety of products that address the opportunity to one degree or another (see the online Buyer's Guide at www.nwfusion.com, DocFinder: 6842).

We invited eight and completed testing on three product suites that offer a full range of real time and messaging functionality for virtual teams: Groove Networks' Groove Client 2.5 and Enterprise Management server; iCohere's Workgroup Suite 3.1; and Documentum's eRoom 6.0 (Documentum announced Version 7 on July 21.). Some companies declined to participate in the review because their products were near the end of a product cycle and the upcoming generation of solutions is significantly different than current commercial offerings. The products we tested have significant differences in how they address challenges facing members of a virtual workgroup and how they help users navigate through the spaces. While all the tested products offered a range of functionality, we gave Documentum's eRoom a Blue Ribbon Award. We found the product's use of icons and collapsible navigation easy to use, feature-rich and very responsive. From an administrative view, we like how the platform does not require a separate messaging server.

Setting up the systems

Documentum's eRoom was by far the easiest to install. The only prerequisite is a fully patched Windows 2000 (or newer) Server. The only mark against the system as we tested it is that the Real Time Server, which supports the collaborative meeting environment, must be installed on a separate Win 2000 server.

Groove's Enterprise Server was almost as easy to install. But in addition to installing on a Win 2000 Server, you need to install Microsoft SQLserver 2000. As long as the SQL server permissions are set up correctly, Groove Enterprise Server will install with minimum effort. Our only hitch was understanding some of the options presented, most notably the wording of Certificate Authority settings.

While certainly not difficult, iCohere's Workgroup Suite install required the most preparation. In addition to installing Win 2000 Server and SQLserver 2000, you need to install MacroMedia's ColdFusion MX and Microsoft Outlook 2000 (or newer), and enable Terminal Services and FTP access. ICohere's support staff uses FTP to upload the installation files and then connect to your server using Windows Terminal Services. The installation then is completed for you. The biggest drawback of this configuration is that it requires membership in a domain that has Exchange services available for the sole purpose of sending e-mail. The domain membership is required to launch Outlook without a password challenge.

ICohere shines in the configuration phase, however. After a member of iCohere's staff remotely connects and installs the system, it creates workspaces to your specifications as part of a standard installation. As part of a pre-installation survey, you document how many workspaces you need, what functions will be in each room and other details. When iCohere is finished, you have a complete set of workspaces ready for use. While users can be given different permission levels within a workspace, the administrator controls creating new workspaces.

Groove lets users create new workspaces and invite whomever they feel is appropriate to join. The roles of manager, participant or guest can be assigned to the invitees. Groove workspaces contain a default set of features, such as discussion boards and file transfer areas, which then can be customized to fit the purpose of the workspace.

Documentum calls its workspaces

Online www.nwfusion.com

Buyer's GUIDE

There's more online at Network World Fusion on collaborative workspace vendors as well as Web conferencing vendors. If you're looking to install team technology, look no further than our Web site.

We've got information on more than 30 products, including:

Collaborative workspaces
- Advanced Reality
- Application Security
- Documentum
- Groove Networks
- iCohere
- iManage
- Kubi Software
- Microsoft
- Open Text
- Welcom

Web conferencing
- Akiva
- Assemble
- AveComm
- Cata
- Data Connection
- Glance Networks
- Horizon Live
- MeetingZone
- Netspoke
- VCON
- WebDialogs

DocFinder: 6842

Net Results

RATING **4.25** BLUE RIBBON WINNER

eRoom 6.0

Company: Documentum, (925) 600-6800 **Price:** $17,000 per server, $200 per user. **Pros:** Very easy to set up and configure. Intuitive and flexible user interface. **Cons:** Two separate servers are needed for full functionality.

RATING **3.75**

iCohere Workgroup Suite 3.1

Company: iCohere, (925) 937-5500 **Price:** Site license starts at $10,000 including 50 user licenses. Up to 450 more licenses are $100 each. **Pros:** Completely Web-based; easy to interact with other users. **Cons:** Needs additional Exchange mail server.

RATING **3.6**

Groove 2.5

Company: Groove Networks, (978) 720-2000 **Price:** About $20,000 per Enterprise Management server, $149 per client. **Pros:** Very easy to be a mobile user who is intermittently connected; easy to see who also is connected. **Cons:** Somewhat limited in functionality and flexibility.

The breakdown

	eRoom (WINNER BLUE RIBBON)	iCohere	Groove
Features 40%	4	4	3
Installation/configuration 25%	5	3	4
Usability 20%	4	4	4
Extended-enterprise support* 15%	4	4	4
TOTAL SCORE	4.25	3.75	3.6

■ **Scoring Key:** **5:** Exceptional; **4:** Very good; **3:** Average; **2:** Below average; **1:** Consistently subpar

*The degree to which the system supports multi-enterprise collaboration.

How we did it

Our tests involved using two different hardware systems — for iCohere and Groove, we installed Windows 2000 Server and SQL Server 2000 on an HP ProLiant DL360 G3 server, with twin 2.8-GHz Intel Xeon processors, 1G byte of RAM and a mirrored 36G-byte disk array. The eRoom server was installed on an RLX Technologies 800i server blade running Windows Advanced Server 2000, with an 800-MHz Mobile Pentium III, 1G byte of RAM and two 38G-byte disks.

For each product, we created at least two workspaces. One was used to simulate a coordinated product launch, and the other simulated an engineering project group. Testing was held from three different remote locations (Massachusetts, Kansas and California), in addition to local usage.

Tests were conducted in four categories:

Asset management — create documents, use version controls, manage editing process, create calendars and manage other digital assets to store within a workspace.

Real-time communications — instant messaging and/or chat, whiteboard and application sharing, online presence and collaboration.

Non-real-time communication — off-line editing and synchronization, meeting and process planning, workflow, voting/polling, threaded discussions, and individual, or group messaging and announcements.

Information dissemination — Examining facilitation tools during a live (one-to-many) event and the ability to retrieve event archives on demand.

rooms — new rooms can be populated with objects from a template, or a blank room can be created in which you can create your own objects later. A user with permission can create rooms as he sees fit, using those objects (tools) that best suit his needs and creativity. Individual items also may have permissions set on them. For example, a folder might be created to hold documents. Some users can be given the right to read and edit, while others can only read. You also can choose to hide the folder from users who get no permissions within the folder. This detail in access control is one of eRoom's strengths.

With a Web-based platform, there is virtually no setup needed to join a community or workspace. A Web browser is all that is required to get up and running with iCohere and eRoom. You can supplement the browser experience on eRoom by installing an optional plug-in. The plug-in gives members easy access to project downloads from a local machine, a workspace preferences configuration tool, monitoring, a quick-start button on the system tray and Outlook synchronization.

Groove's client is a run-time application that also integrates smoothly with Outlook, but it must be installed on all team members' systems. In contrast to the Web-based systems, Groove Workspace relies on the client application, which is only compatible with Windows-based systems.

Both iCohere's Workgroup Suite and Documentum's eRoom have password protection for the browser-only user (when running the plug-in, eRoom will remember the password). For iCohere users who forget their passwords, a temporary password can be e-mailed to the user. With Groove and eRoom, if a user forgets his password, a system administrator needs to be notified.

Activity and asset management

Two major challenges that team members face are managing time and project-related files. All three systems we tested have project- or space-specific calendars. Groove and eRoom (through its optional client plug-in) support calendar synchronization with Outlook. iCohere's calendar is Web-based and internal to the application. All three systems also could reflect local times for events or deadlines, permitted recurring events, and could issue notifications to team members if a calendar or project management milestone changed. We also liked that all three systems could link a calendar item to other tools or files. For example, a calendar item in Groove can become a link to the meeting area's agenda, list of participants and minutes. Similarly, a calendar item in eRoom can become the basis of a poll or vote.

Keeping track of your files, whether they are documents, diagrams or slide presentations, can be a headache with e-mail — the collaborative spaces handle this issue very well. Groove's client-centric model (all files are replicated by the client on team members' hard drives) is well-designed for a mobile worker who has a lot of storage space on his notebook. We found that Documentum's database-centric model offered the richest capabilities in terms of asset management and the most elegant interface for viewing author names, last change date and the like. Both iCohere and Documentum have file check-in, checkout, review and approval systems, and other advanced file-management features that are highly controllable by the "owner" of the workspace. All three systems provide file encryption for security-sensitive applications. Groove supports co-editing documents and synchronized navigation (the ability for the host of a space to have all participants in a meeting or project space see the host's screen in real time on their screens), while iCohere offers this through a third-party partner (for example, WebEx or PlaceWare). Documentum's Real Time Server option has file viewing and application and/or desktop sharing seamlessly integrated within eRoom-facilitated meetings.

Additional features

A collaborative workspace must have a directory or contact database to help members find or get to know one another. iCohere had the most flexible and feature-rich approach, letting us post team members' photos or graphics (although we hit a bump when trying to upload a large graphics file into a profile), or even audio files. Documentum was limited in its directory information, but gives users the ability to modify everything but their logon names. Groove places the burden on the system administrator to maintain a "corporate" profile of a user, but lets members create and self-maintain additional "personal" profiles. In addition to a local directory, Groove users can be listed in a "global" directory hosted at groove.net. Both Documentum and Groove could leverage multiple Lightweight Directory Access Protocol directories or Windows domains. However, Documentum had a feature that was unique — the ability to authenticate using RSA Security SecurID tokens. We did not test this feature, as it required addi-

Collaborate via e-mail

If your team members think "collaboration" means hitting the "Reply to All" button, you might want to give them a tool that integrates collaboration via their favorite application — the Outlook or Lotus Notes client. Kubi Software, which launched at this year's Demo conference, has done this with its Kubi Client.

Kubi Client is a plug-in to Outlook or Notes that lets users collaborate in the application they know best. The idea is that end users will more likely collaborate with team members through their e-mail client than through a separate client application or browser (such as those in our main story).

Our team of four testers (in four different locations) downloaded Kubi Client and installed it on our systems. Two testers used Outlook 2000 with their POP3 e-mail accounts; the other two sites used Outlook in connection with an Exchange server.

Kubi Client creates Kubi Spaces that include windows for discussions, contacts, task lists and document storage, and a project timeline. Any team member can create a new space (he becomes the team leader) and invite other team members to participate. Any user who doesn't have Kubi Client installed gets an e-mail with an invitation to download a trial version.

Content that sits in the Kubi spaces stays on the client (as a personal .PST file), not on the Exchange or Notes server. When new content is added (such as a new document posted or a new discussion post), the system sends messages to all the other team members, who then see the content refreshed. When an offline member comes back online, Kubi Client searches for new content and refreshes the information in his Kubi Space.

Because Kubi is married to the e-mail system, your happiness with Kubi is directly proportional to your happiness with your e-mail system. Our four testers all had different issues with Kubi Client, such as not receiving invitations from team leaders, to a long refresh period while waiting to join a space. One tester's Kubi Client kept shutting down periodically, and another one had some problems with the anti-spam filter connected to the server. Another tester began having other system problems after Kubi installed, only to have those problems vanish after she uninstalled the client.

Collaborating via Kubi Client never fully took hold, either. Instead of posting questions/comments to the Kubi discussion boards, we all just continued to hit the Reply to All button on our e-mails. Even though Kubi was integrated into the Outlook file, it took a conscious effort to constantly check the Kubi Space to see if a new message was there. For the most part, we still lived in our in-box. To be fair, true collaboration never truly caught on with the other workspaces either, but we thought our best chance for collaboration would be in the e-mail system itself.

In the end, we think collaborating via e-mail is valid — once Kubi can get the installation/setup bugs out of the way and adds features such as chat and whiteboards.

— Keith Shaw

tional software.

All three systems could show presence — where a team member was located within the space — but we thought Groove did the best job of tracking the presence states of team members. For example, it was clear when someone was online in a Groove location but not in the same room. We would have liked a clear log-out button on eRoom. Once the client plug-in is sitting in the system tray, a member might appear to be in a space if he is focused elsewhere on his computer.

Voting and polling are important features. Groove's client doesn't support voting/polling within the application out of the box. However, you can create this through Groove's custom-built tools or a third-party voting tool, Flexivote, developed by CompuTact Software Services (www.apwiz.com). Flexivote is fairly limited and does not integrate with other tools.

By contrast, Documentum took voting/polling to the extreme — any event, item or file could have a question and poll associated with it. ICohere also has strong voting/polling features, but they were not as well-integrated within the context of a discussion or activity, and were more difficult to configure than Documentum's voting/polling tool.

Scheduled and ad hoc meetings

Real-time messaging (such as chat or instant messaging) in all three systems let team members communicate via text during group meetings or smaller gatherings, whether scheduled or ad hoc. The iCohere "native" system for ad hoc meetings uses pop-up windows that can get hidden behind other open windows, and politely close when no longer needed. Meeting invitations in iCohere can be sent through third-party messaging (e-mail) or the internal workspace-messaging tool. ICohere also can link to an enterprise meeting server or hosted service, which takes advantage of other enterprise resources.

Groove includes text-messaging support and has a strong meeting-agenda feature, user management tools, and the ability to co-edit files or browse URLs simultaneously with your team. Groove also adds some voice functionality. With the press of a button, your team can chat together as if they were on a speakerphone, although sound quality isn't quite as good, and latency is more noticeable than on a regular audio conference call.

The Documentum eRoom Real Time Server was the most tightly integrated offering and resembled a full-featured Web conferencing platform — including features such as moderator control, synchronized Web surfing and color-coded team member markup tools. From nearly anywhere in the space, a right-click on an asset, task or member name pulls up an eRoom operation menu, including options such as "add to meeting" or "invite to a meeting." The degree to which this integration is important to a team varies with the project or process, but it certainly helps keep everyone focused in the same space and avoids breaking up the flow of work by changing tools for different tasks.

Messaging and announcements

When team members are not around at the same time, they can use tools such as message boards (also called Discussions) and Announcements as a way to communicate. Threaded discussion systems were well-developed in the three systems tested. We especially liked, with Groove and eRoom, how the system could hide previously read messages and emphasize the unread contributions.

The Announcements area is a way to show that a message is more important than on a regular message board — all the tools tested also had this functionality.

Creating a message or announcement was easy in all three systems, but selecting the recipients of a message was somewhat clumsy in the iCohere and Documentum systems. They required the sender to select names from a separate screen or pop-up window (if the message was intended for someone other than the entire group), rather than using the user's primary messaging contacts database (for example, Outlook).

All three systems included "welcome" screens that let members post special announcements, but we didn't find the welcome pages in iCohere or Groove very useful after the first visit to a space, unless the administrator wants to use this page to display system announcements. The administrator can turn off the welcome page in iCohere, and individual team members can delete the "welcome" tool within their Groove workspace. A "home page" in Documentum eRoom gives access to all the features, and we preferred this user interface and its exceptional flexibility.

Conclusion

Selecting a collaborative workspace system depends a lot on your company, its workflow processes and team member situations (see sidebar, Before you deploy, above). At a basic level, we feel a system should include activity and asset management, and tracking tools, both real-time and non-real-time messaging, and team member management tools. While all three systems are good, we feel that Documentum's eRoom comes out on top. It is easy to install and configure, has a very intuitive and easy-to-use interface, and can be adapted to meet the needs of virtually any collaborative effort.

Perey is president of Perey Research & Consulting, a market research and business development consulting company helping companies design and deliver networked multimedia solutions to market for enhanced enterprise communications. She can be reached at cperey@perey.com.

Berkley is manager of LAN Support Services at the University of Kansas. He can be reached at berkley@ku.edu.

Perey and Berkley are also members of the Network World Test Alliance, a cooperative of the premier reviewers in the network industry, each bringing to bear years of practical experience on every review. For more Test Alliance information, go to www.nwfusion.com/alliance.

Before you deploy

Categories and features of collaboration software are blurring quickly. The term 'collaboration' has become the new marketing catch phrase, devoid of meaning and dismissed as another fad. For this reason, we'll call it "team technology."

You can approach team technology from as many directions as there are people who work. Workers can be in the same office, in different locations, teleworkers, distributed teams, designers, writers or trash collectors. The ability for one application to work for all the ways people and teams work is impossible. Before you deploy, consider the following key questions:

1) Where does your team do most of its work?

A far-flung consulting team that works all day on airplanes won't be attracted to an application service provider or Web-based product. Conversely, a team of product designers working in the same office might be delighted by a hosted service.

2) Are outside partners going to participate?

Teaming with outside partners that don't have the same applications as your company will cause great frustration. A long-time trusted partner working in a Macintosh shop might not appreciate it when you institute a PC-based collaboration platform. This will lead to dual work processes or a severed relationship. An Internet-based platform might not be the best choice for the way you work, but the ability to work with partners might outweigh this.

3) Are you standardized on your technology?

Many companies in transition (especially in this economy) are not standardized on an operating system. The less standardized the environment, the more likely your company will be forced to move to an Internet-based team technology.

4) What is the pace of your company?

Team technology takes some extra effort. In many cases, an employee who doesn't use existing technology effectively doesn't have the time to learn the features and tools of a new technology. A company that is fast-paced might do better to implement a simpler technology (intuitive and aesthetically pleasing) instead of the full-featured boat. For example, look at instant-messaging applications — voice and video might be used once or twice, but these features are too much trouble for most employees to use consistently. Too many features actually might discourage use.

5) What are your current work processes?

If adding team technology doesn't positively affect your work processes, it won't create the anticipated return. In many cases, the team technology might not integrate with your systems and might create extra steps in the work process. Understanding the processes and simulating the changes required are essential.

Conclusion: Team technology can be deceptively complicated. Evaluating the way your company works and finding the best fit for the company's personality are the keys to success in this space. True collaboration can be beneficial only when it is considered the same way as other management decisions — with ROI being more than just installing an application.

— Brett Trusko

Trusko is a management consultant and futurist who speaks, writes and consults on work in transition, including optimizing how and where employees are most productive. He can be reached at btrusko@future-org.com.

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- David Woolley, http://thinkofit.com/webconf

TESTER'S CHOICE
David Newman

Wireless LAN switches: First impressions

I've spent the past several months working with wireless LAN switches for an upcoming review. It might be a new area with players and technology still in flux, but even so our preliminary testing has uncovered several key issues. If you're considering a wireless switch rollout, here are a few pointers:

"Wireless switch" is an oxymoron. Don't expect these products to move traffic from one frequency to another. Most products consist of multiple wireless access points attached to a wired switch, where the actual switching occurs.

Where these devices differ from wired switches is in their additional smarts to deal with radio frequency issues and other aspects of WLAN traffic management.

Interference happens. Using a spectrum analyzer can be a sobering experience. Set the dial to the right frequency, fire up a computer and voilà — suddenly you see how much electromagnetic energy we're constantly bombarded with.

Access points from neighboring offices constitute another interference source, as do multiple access points too close to the same switch. All these factors make a huge difference in performance.

Wireless switch management tools should recognize radio frequency changes and adjust signal strengths to compensate.

Prepare to sniff in the dark. So far, only one of the switches we've seen has port mirroring, a feature that allows frames to be copied for capture and decode by a protocol analyzer. If you want to capture traffic, you'll need an external splitter or a next-hop device that does port mirroring.

Grabbing the traffic might not be much help, however. There's no standard yet for communications between access points or between WLAN switches. As a result, some vendors use proprietary formats to encode interswitch traffic — and commercial analyzers don't decode those formats.

Don't expect precise latency and jitter measurements. The tools don't yet exist to obtain reliable measurements of latency and jitter on WLANs. That's a big problem when it comes to voice over IP — one of the applications most often considered for wireless switches.

The issue exists because packets leave most wireless devices at a variable rate. In the wired world, traffic generators use custom hardware to ensure precise control over packet departure intervals.

That kind of precision isn't possible with current WLAN designs. All the access points we've seen consist of a CPU and software.

As with any CPU-based design, the amount of work an access point can do depends on how busy its CPU is, and how much of its memory is in use. Thus, even if packets enter an access point at a constant rate, they might depart at variable intervals.

This problem will remain until a device is built that ensures consistent departure times from the wireless transmitter.

Despite these issues, I'm optimistic about wireless switching. Extending the enterprise and pulling less cable are powerful concepts. All we've got to do is find and fix the issues with this early-stage technology.

Newman is president of Network Test in Westlake Village, Calif., an independent benchmarking and network design consultancy. He can be reached at dnewman@networktest.com.

VoIP unwired

Voice and wireless Ethernet might seem an odd mix, but for mobile workers or hard to-wire areas, it can be the perfect combo.

■ BY PHIL HOCHMUTH

Converged voice/data network projects can be tough, especially if you can't use any wires. That's what Mike Burns, a systems integrator, discovered when a client asked him to provide voice and data services to a gold-mining operation in the middle of a Laotian jungle. Burns faced a sticky situation — literally.

"The ground was mostly mud, so we couldn't bury any cables, and there were no poles where we could hang wire," says Burns, who is president of Nationwide Computer Systems, an ISP and integration firm in Fort Lauderdale, Fla. The solution would obviously be a wireless one: Burns used 802.11b gear to connect 50 IP phones, PCs, a router and satellite dish for the mining camp. The camp, which stretches over a two-mile area, consists of 20 structures for operations, living quarters and offices.

Wireless Ethernet certainly isn't the first infrastructure that experts recommend for carrying voice over IP (VoIP), but Burns and other users are finding 802.11 works fine for their IP telephony requirements. The combination of the technologies is proving useful for keeping mobile employees, such as hospital workers, in touch or for linking IP phones in areas where Category 5 cabling is hard to run.

Voice quality can be a major issue because Wi-Fi LANs are slow at 11M bit/sec, and in most cases, a shared medium, likened to 10Base-T hubs. The IEEE is creating standards to increase security and quality of service (QoS) on Wi-Fi — such as 802.11i and 802.11e — but widespread adoption of those technologies is still at least a year away.

While some users say IP voice quality is fine over Wi-Fi, others have adopted proprietary QoS features supplied by Wi-Fi and wireless IP phone makers to make sure of that. At the mining camp, where voice and data contend for Wi-Fi connections, Burns relies on router-based QoS.

Burns built a wireless VoIP network using an AltiGen Communications AltiServ IP PBX, Polycom IP phones, Lucent Wi-Fi access points — lashed to trees, Cisco hubs and a router, which connects to satellite equipment for outside communications. Hubs and Wi-Fi routers in the camp buildings connect the IP phones and connect to PCs for e-mail and mining data analysis. (More than a dozen gas generators power the network gear.)

Connecting the mining camp to the outside world was easy, Burns says. A satellite dish syncs up to a fiber connection in Germany, which ultimately runs to Nationwide's ISP point of presence in Florida. The hard part, he says, was connecting telephones down on the jungle floor for calls between buildings — or huts, as Burns calls them.

"There was no way we could have deployed a traditional PBX in this environment," he says.

"It was pretty out there," Burns says of the network, which is still operating. "I've thought about that project a lot, and there was no other way we could have done it."

Wi-Fi and VoIP, stat

At Mercy Medical Center in Roseburg, Ore., IT Director Nancy Laney could have given nurses regular phones or new pagers, but opted for wireless VoIP devices instead. The hospital uses wireless VoIP communications badge appliances from Vocera Communications.

Nurses wear the gadgets, about the size of TV remotes, around their necks with lanyards or pinned to their shirts. To reach someone, a nurse presses a button on the badge and scrolls through names in the system, then presses another button to talk. The voice signal travels to the recipient over the hospital's Wi-Fi infrastructure.

Mercy Medical installed 10 Cisco Wi-Fi endpoints throughout the facility to support the Vocera infrastructure, which replaces an outdated pager system, Laney says. Wireless VoIP lets nurses contact each other faster and more efficiently than previous pager systems or with telephones, she adds.

"We were going to install a wireless infrastructure anyway, so we just accelerated that project" when deciding to use the Vocera devices, Laney says. "After a 30-day trial, our nursing staff was hooked. We've had technology rollouts that met some resistance, but this is not one of them."

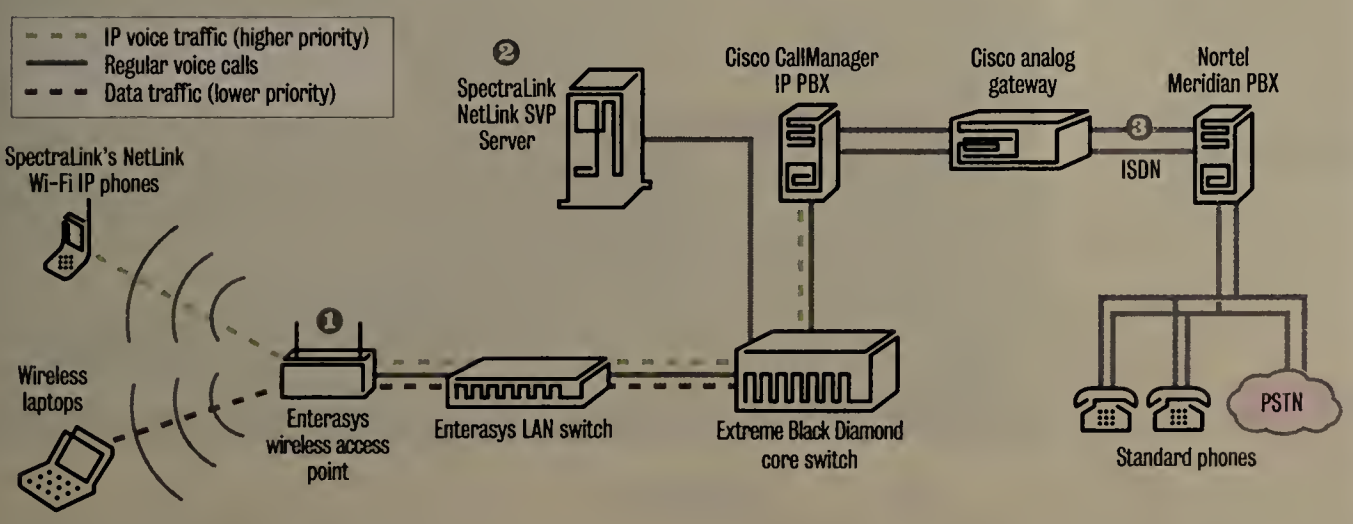
A Windows server running Vocera's management software and user database controls the Wi-Fi VoIP network on the back end. The software lets administrators add and remove users from the system and customize individual calling features. They can track users on the system using an open source MySQL database. The hospital uses interactive voice response (IVR) software from Nuance, processing voice-activated commands.

During emergency situations when nurses don't have time to scroll through names, they can use the IVR feature by voice prompt. Speaking a person's name, the name of a group or for all nurses on a certain team will initiate the call.

Users also can find where someone is through the Vocera system. They say "find" and the name of the person, and the IVR software responds with the location of the requested user. To make this possible, Laney has assigned all the Wi-Fi access points in the hospital a name based on their location, such as "Emergency," "OR" or "Cafeteria" and entered them into the Vocera database. The hospital even is attaching Vocera badges to frequently used pieces of equipment, such as EKG machines or defibrillators so nurses can find them

Wi-Fi VoIP: Behind the curtain at one medical center

University of Southern California University Hospital uses QoS technology on a Wi-Fi gateway and at the LAN switch to ensure wireless IP voice calls get priority as they cross the LAN.



❶ Wireless IP phones and other devices get LAN connectivity via 802.11b, or Wi-Fi, access points.

❷ The proprietary NetLink SVP Server coordinates forwarding priorities among the wireless access points, IP PBX and LAN switches. Voice traffic receives priority over data on the wired and wireless LAN.

❸ IP voice traffic converts to regular voice as it moves from the IP PBX to an ISDN line providing connectivity between the IP and regular PBX.

devices quickly, Laney says.

Mercy Medical has plans to give nurses wireless tablet PCs, so the Wi-Fi infrastructure will soon be carrying data, too, Laney says. Because the Cisco access points can support the prioritization of voice traffic, Laney says she does not anticipate bandwidth-contention issues.

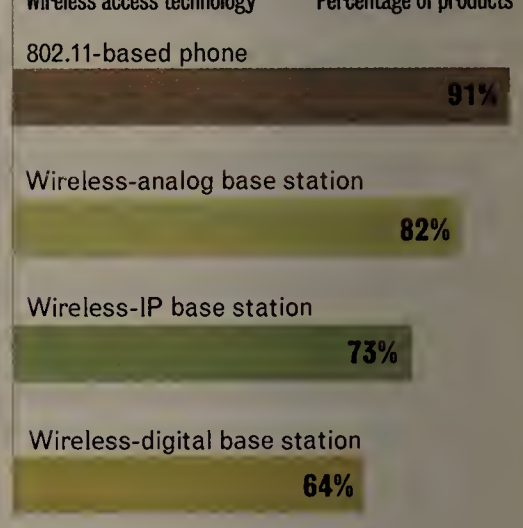
The Vocera system is slightly more expensive than the pager system it replaced, but Laney says she expects the hospital to save money ultimately because it is giving wireless VoIP access to other groups, such as doctors, maintenance workers and cleaning staff. These employees had used pager systems or walkie-talkies.

Similarly, at University of Southern California University Hospital (USCUH) in Los Angeles, nurses and doctors now stay in touch via 802.11b-based NetLink IP phones from SpectraLink. A total of 273 wireless IP handsets are in use at the hospital. Wireless IP phones are now a single source of communication for all staff, and replace a mix of communication methods used in the past such as nurse call buttons, a public address paging system and cordless telephones — which were inefficient, says Anthony Kellogg, project manager for USCUH.

The wireless VoIP decision came after two separate infrastructure projects USCUH undertook last year. In the first, the hospital built a Wi-Fi network using Enterasys Networks gear to support mobile devices, such as laptops.

Anticipating Wi-Fi VoIP

In a survey of 15 IP PBX vendors, making 22 IP-based telephony systems, Miercom found that most respondents' devices can handle calls from 802.11-compliant wireless phones.



Calling CallManager

In the second project, the hospital installed a Cisco CallManager IP PBX to connect some remote facilities to a Nortel Meridian PBX over IP. USCUH brought those projects together when it chose to give the medical staff Wi-Fi phones. To ensure voice quality, the hospital relies on SpectraLink's NetLink SVP Server, which provides a proprietary QoS feature for giving voice calls priority over data. When the voice packets hit the wired network, they are placed into the first of eight priority queues on the Enterasys LAN switches.

CallManager — a redundant Windows server running Cisco's IP PBX software — routes all calls inside the USCUH. (The majority of the SpectraLink traffic is internal.) CallManager also provides call-control features, such as call forwarding, hold and dual-line support. While most VoIP calls are internal, SpectraLink phone users can place external calls, too. The VoIP traffic converts to regular voice as it moves from the CallManager to an ISDN line, connecting that IP PBX to the Nortel Meridian PBX.

While adoption of wireless LANs isn't expected to outpace wired networks anytime soon, and land lines for voice are still king in most organizations, users willing to push the IT envelope are finding that Wi-Fi VoIP is more than just the combination of two industry-chic acronyms.■

Management **Strategies**

- CAREER DEVELOPMENT
- PROJECT MANAGEMENT
- BUSINESS JUSTIFICATION

Call in the security auditors

Independent SAS 70 audits could show you how secure data is with your service provider.

■ BY LINDA LEUNG

Members of the Web site Points.com can exchange their miles or points in select loyalty programs, such as American Airlines AAdvantage, for miles and points in other participating programs, use them to shop on eBay, or trade them for gift certificates at JCPenney and FTD.com.

"We model ourselves like a bank, and we need to be as secure as a bank," says Darlene Higbee Clarkin, CTO and vice president of IT at Points International, operator of the site. That provision extends to Digex, which hosts Points International's entire IT infrastructure.

The company is assured of Digex's approach to security because the hosting firm invites Ernst & Young to audit annually the IT and business processes and procedures that affect its customers' business. The auditor details its findings in a document called a Statement of Auditing Standards (SAS) No. 70 report.

Developed by the American Institute of Certified Public Accountants (AICPA) and launched in 1992, the internationally recognized SAS 70 provide an independent verification of the descriptions of a service provider's control activities and processes.

"Being SAS 70 audited was the determining factor for us," Higbee Clarkin says of the decision to use Digex. "We feel confident that Digex has the processes and infrastructure that would protect us from potential compromise." The audit also gives Points International's partners peace of mind.

A SAS 70 audit is particularly useful for companies that outsource certain parts of their operations and need to undergo annual financial audits. They can show their auditor the SAS 70 report of their service suppliers so the auditor doesn't need to conduct its own audit of the provider's facility.

Generally, the controls or processes that are audited are those that protect customer data, and that usually includes the IT functions. Because of this, SAS 70 is generating a resurgence of interest from businesses that are required to meet new regulations designed to protect sensitive data.

Pamela Fusco, chief security officer and director of systems security at Digex, says customers request Digex's SAS 70 report to help them meet the requirements of such regulations as the Health Insurance Portability and Accountability Act, the Sarbanes-Oxley financial reporting act and the Gramm-Leach-Bliley privacy act.

A vendor's ability to submit a SAS 70 report is a "make or break" for the Federal Reserve Bank of New York when it comes to signing on the dotted line. "We use a SAS 70 report as a starting point for assessing assurances and controls at external service suppliers," says Sean Mahon, vice president and information security officer for the bank's National Incident Response Team.

The bank recently decided not to use the services of a salary-benchmarking consultancy because it lacked a SAS 70 report. Mahon wanted independent evidence of the consultancy's security processes to protect sensitive employee data.

However, some observers warn against using SAS 70 as an in-depth audit of a provider's IT security controls. "SAS 70 is a way for organizations to describe processes in a consistent way. It's a disclosure tool rather than [a tool that says] whether they're secure. So it has a limited objective and value," says Jonathan Gossels, president of network security consultancy SystemExperts.

The important element to consider, Gossels says in his white paper "SAS 70: The Emperor Has No Clothes," is that SAS 70 doesn't have a predetermined set of standards or checklists that an organization must satisfy. In essence, the service organization sets its own control objectives, and the auditor reports on whether these are met.

"If an organization does not have a security policy covering a particular area, or has one that allows ineffective security ... the SAS 70 audit report would contain a favorable opinion because the control activities matched the stated control objectives," Gossels writes.

Although Chuck Landes, director of auditing standards at the AICPA, agrees that service providers can set the measurement bar, "that is not important. The decision-making is made by the auditor of the [service provider's] customer — if they are not satisfied they can ask for more work to be done," he says.

The Federal Reserve Bank of New York's Mahon says it's up to the customer to review the report to determine whether the service provider has sufficient processes in place. "We use SAS 70 because there is no commonly accepted security metric," he says. "It is as close as it gets to having a common baseline."

"You use your best judgment when you read the SAS-70 report, but we also do our own independent security auditing," Points International's Higbee Clarkin says.

A handful of other security assessments coming into play could address some of these concerns. AICPA developed SysTrust and WebTrust to provide independent verification of a service supplier's systems or e-commerce operation. Auditors test the reliability of systems by measuring against set criteria for four principles: availability, security, integrity and maintainability. If the systems meet the requirements of the SysTrust Principles and Criteria document, an attestation report is issued.

Digex also has been audited for SysTrust and WebTrust, and Fusco says the audits are more technically involved than for SAS 70. "There are set criteria you must meet, and there is testing of control objectives, user accounts, documentation control and data transfer."

The ISO 17799 is a code of practice that offers guidelines and voluntary directions for information security management. It provides guidance on a range of topics, including security policies, personnel security, access control, and communications and operations management, but typically does not go in depth. According to an FAQ developed by the U.S. National Institute of Standards and Technology's Information Technology Laboratory, "ISO 17799 should be augmented by more technical guidance in order to be used effectively for a security review." ■

Independent security audits

Auditing standard	Purpose	Coverage	Caveats
SAS 70	Lets service providers describe their control activities and processes in a uniform reporting format.	The controls audited are those affecting customers' financial statements.	Lacks a predetermined set of control objectives a service provider must meet. Covers general controls and is not specific to IT or security.
SysTrust and WebTrust (for e-commerce activities)	Provides assurances that a service provider's systems controls meet one or more of the AICPA Trust Services principles and related criteria.	Internal controls for security, online privacy, availability, confidentiality and processing integrity.	Not a comprehensive security assessment; is focused on systems reliability.
ISO 17799	Contains guidelines for security and business continuity. Lets a service organization identify where it falls short of best practices.	Identifies itself as a starting point for developing organizational security.	Not a set of required practices or technologies. The compliance portion of the standard is not well accepted.

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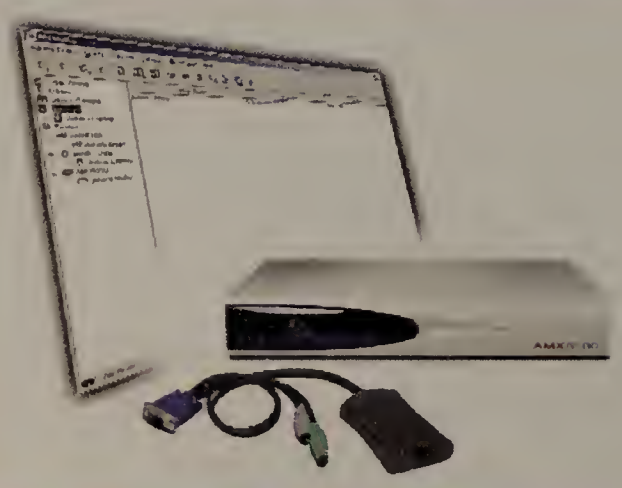

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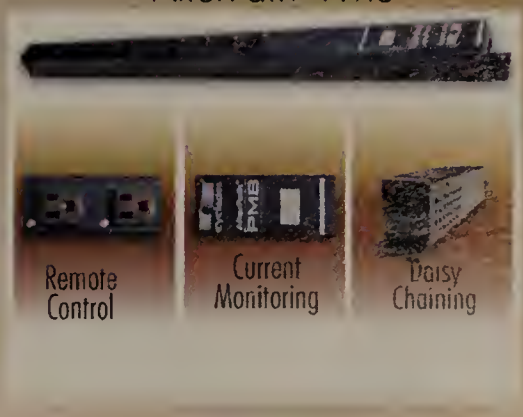

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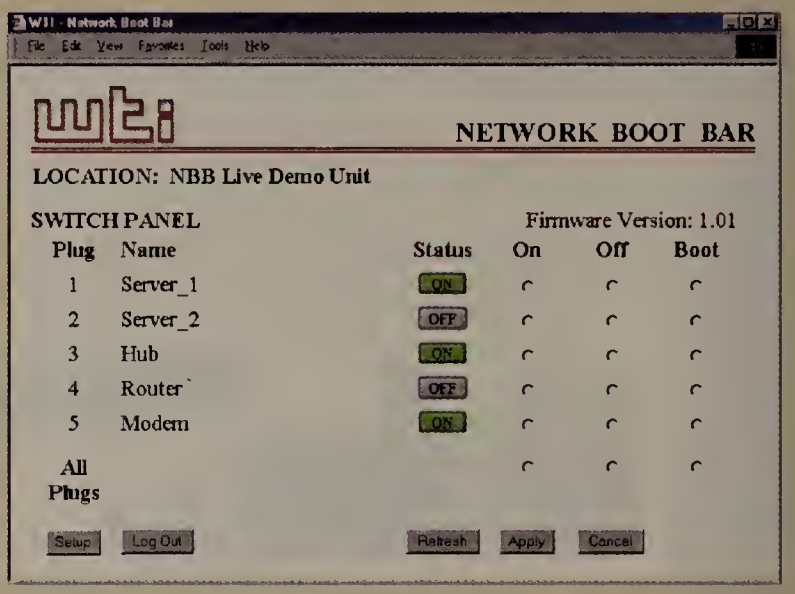

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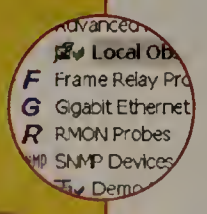

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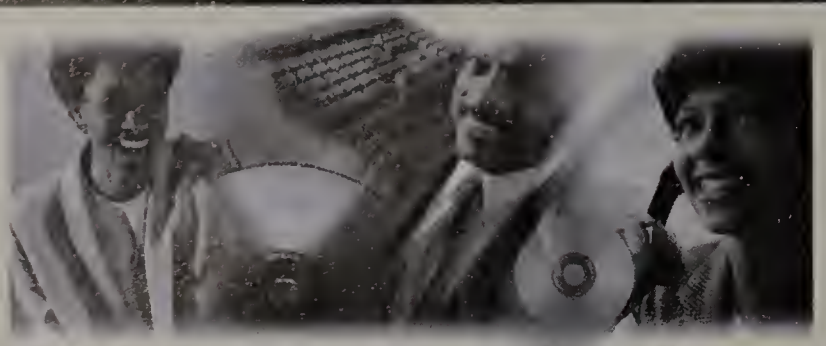

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SENIOR SYSTEMS ENGINEER

Position based in HR Systems and requires strong knowledge of PeopleSoft architecture as it relates to application servers, web servers, database servers, tuxedo messaging and process scheduler. Will use project management knowledge skills, tools and techniques to lead and execute multiple project/service initiatives of moderate or greater size, complexity and impact. Will plan, organize, actuate and control delivery of IT products and services. Duties will involve the construction/configuration, installation and maintenance of complex or pioneer application/system software; full testing of application/system software and configurations, creation and/or updating of application/system documentation; designing application/system solutions that emphasize preventive versus corrective measures; and identifying appropnate technical solutions. Requires bachelor's degree or its equivalent in Computer Science or a related field and three years experience with PeopleSoft. Position is located in Omaha, Nebraska Fulltime, M-F. Salary $70,000/year. No assistance with relocation expenses is offered.

Interested applicants may submit their resumes to www.conagrafoods.com, click on "careers", then "apply now" Note: you must type in the following code of C00181 in order to apply for this position. Failure to correctly enter this information will result in non-consideration for the position. You may also submit your resume to ConAgra Foods, Inc., Attn: Nadine Ries, Human Resources, ETS-200, 7300 World Communications Drive, Omaha, NE 68122.

Senior Database Administrator

The Senior Database Administrator will function as a key member of the IT Infrastructure team responsible for the definition, design, documentation and on-going support for SQL databases for the Chicago-based ConAgra Foods companies. This will include overseeing all aspects of database administration on all related servers for this operating group; design, implementation and/or modification of database; performing server-level analysis to determine future growth patterns and appropriate new technologies; and the diagnosis, correction and prevention of computer systems errors and failures on end-user and network levels. The candidate must possess experience in the following areas: Kronos™ Time and Attendance management systems (including Workforce Central Suite, Data Collection Manager, and NexTrak Leave Management system); Record Archive system; Database Recovery Plan; and SPC9000™ Statistical Process Control. Position requires minimum of a Bachelor's degree in Computer Science/Engineering or a related field and five (5) years experience in a position that involves implementation of complex systems projects. Position fulltime, M-F. Salary $86,750/year. Job is located in Downers Grove, Illinois Relocation assistance for this position is not provided by the Company.

Interested applicants may submit their resumes to www.conagrafoods.com, click on "careers", then "apply now". Note: You must type in the following code of **CIMN00764** in the box labeled "In what job are you interested" in order to apply for this position. Failure to correctly enter this information will result Nadine Ries, SPHR, Human Resources ETS-200, 7300 World Communications Drive, Omaha, NE 68122.

SENIOR PROGRAMMER ANALYST: Duties include: Will formulate and define systems scope and objectives in order to purchase, design, develop or modify information systems. Involved in all processes concerning systems analysis and programming, including design factors, hardware and software requirements, system facilities, and job control procedures. Will identify and analyze business requirements geared toward applying computer technology to business processes. Will create functional specifications and derivative programs. Will conduct vendor application software research and evaluation and install customized vendor packages and complete system integration as required. Will analyze and prepare documentation on application systems for internal and external use. Min. Reqs.: BS/BA (foreign equivalent accepted) in CS, EE or related field of study plus 2 years exp. in job offered or 2 years exp. in related occupation (i.e. Programming or Systems Analysis). MUST possess demonstrated expertise in the following: (1) Major system installation including development, implementation, and maintenance of distributed systems; (2) Programming with Visual Basic/C, Cold Fusion, and Powerbuilder; (3) Application design in support of Group Insurance product requirements; and (4) Using Crystal Reports, PVCS Dimensions, or Installshield. Salary Range $55,500 to $65,000 per year FT and standard company benefits. EEO. Submit 2 resumes and respond to Case No. 2002-02289, Labor Exchange Office, 19 Staniford Street, 1st Floor, Boston, MA 02114.

TechNation Software Consulting, Inc, a software consulting company with its main place of business at Sioux Falls, SD has multiple positions for Software Professionals in the area of Datawarehousing Technologies and in Middleware. TechNation intends to build a top notch team that can provide solutions in these areas and is looking for professionals at Techlead, senior programmer analysts and developer positions

1. Techleads: Will lead a team of 3-5 programmers in new development/maintenance, provide design, lead the team in development and will allocate work and take responsibility of time schedules.
2. Senior Programmer Analysts: Will analyze client needs, evaluate existing software, gather requirements, and help design the specs along with taking part in customization of software.
3. Developers: Will code, help customize software and will perform unit testing.

Requirements: All positions require BS in Comp. Science or its equivalent with more than 3 years of overall IT Experience. All positions will require experience in one of Business Objects, Cognos, Informatica, Oracle Express, Siebel, Tibco or in WebMethods with experience in allied Internet technologies.

TechNation provides onsite-consulting services to clients across the United States and hence a key requirement for all positions is that candidates must be willing to relocate across the country for periods between 3-6 months or as needed.

Send resumes to Rona Troff, 300 N. Dakota Ave. Suite #505-B, Sioux Falls, SD 57104 or email rtroff@tnscinc.com Fax: 530-733-2775.

Teksoft Inc is a growing software development and consulting firm in Houston. We are looking for Computer Professionals for the following positions.
Software Engineer: Research, analyze, design and develop internet programs for WEB based knowledge management, customer relationship management, sales force automation and e-commerce for development of SAP packages. Must have knowledge of any SAP (I.S) Industry Solutions modules. Requires Masters degree in Computer Science or in a related field and 1 one year of experience in the advertised position or in a similar position and ability to use SAP Industry Solutions modules. Must be willing to travel.
Programmer Analyst: Plan, test and develop internet based programs for ERP packages, CRM, Sales force automation and E-Commerce. Requires a Bachelors degree in Computer Science or in a related field and one year of experience in the advertised position or in a similar position and ability to use ERP and CRM. Must be willing to travel.
Send Resume and Cover letter to: Teksoft, Inc. 7457 Harwin Dr, # 303-B, Houston, TX 77036.

Software Engineer 4 wanted to develop & customize multi-lingual real time voice recognition applications for large-scale commercial wireless networks on Windows/UNIX platforms; define natural language grammars using parsing & object oriented technologies; implement & integrate Oracle procedures, triggers & packages to store subscriber data; design, implement & test feature enhancements; customize VoiceXML applications for voice portal, next generation voice mail & unified messaging products; provide tech. lead support for customization of features for delivery to customers. Must have Bach. deg. in Comp. Sci., Elect. Eng. or related field & 4 yrs. software development exper., incl. at least 1 yr. exper. with compilers & parsing, & incl. exper. with large-scale commercial networks, object oriented technologies, Oracle & XML applications. Salary $85,561/yr. Send 2 resumes to Case#200202346, Labor Exchange Office, 19 Staniford St., st Fl., Boston, MA 02114

Account Executive

Initiate, engage, develop, and manage business relationships and partnerships including prospect generation, preparation and presentation of solutions and proposal preparation and finalization for Odyssey and Flowmate based projects. Bachelors degree in Business or Economics and 2 yrs.of exp. or 2yrs. of exp. in a related position w/ability to use: Odyssey and Flowmate and knowledge of ISO 9001 and CMM Level 4 concepts. 40.0 hrs./wk 9:00 AM - 6:00 PM Applicants send cover letter and resume to: SRA Systems, 1945 Cliff Valley Way, #270, Atlanta, GA 30339, ATTN S. Nagarajan.

SOFTWARE ENGINEER to analyze, design, develop, test, implement and maintain software systems for e-commerce applications using object oriented methodology with Visual Basic, SQL Server, UNIX, Oracle, Java and web technology. Require: B.S. in Computer Science/Engineering and six months experience in the job offered or any experience providing skills in described duties (experience may be full time or equivalent part time). Coursework must include Operating Systems and Algorithmic Analysis. Competitive salary and benefits. 8:30 am to 5pm, M-F. Apply with resume to: President, Credit Card Management, Inc., 7289 Garden Road, Suite 113, Riviera Beach, FL 33404.

Software Development

V.L.S. Systems Inc is a software development and consulting co with multiple openings for Software Engineers, DBA's, and Programmer Analysts to work at client sites throughout the United States. Individuals must have a minimum of a Bachelor Degree and 2 years of experience in software application design, programming, administration and testing of any of the following: CRM, ERP, Client/Server, Mainframe and Web Applications using any of the following: Siebel, Oracle Apps, PeopleSoft, SAP, MS SQL Server, UDB/DB2, Sybase, Abinitio, SeeBeyond, Vignette, C++, ASP.NET, XML, Java, J2EE, Java Scrpt, Perl, HTML, Cobol, CICS, MVS/ESA, Unisys, Visual Basic, COM+, MTS, Cognos, Websphere, Weblogic, Web Methods, Unix, Windows NT/2000/XP, Embedded related tools. Apply to V.L.S. Systems, 9900 Main Street, Suite 304, Fairfax, VA 22031.

For over 20 years, **Syntel** employees across North America, Europe, and Asia have helped build advanced information technology systems for leading Fortune 500 companies and government organizations to improve their efficiency and competitiveness. Today, Syntel professionals are building rewarding careers by providing solutions in e-business, CRM, Web Design and Data Warehousing.

Come discover why Forbes magazine placed Syntel second on its list of "The 200 Best Small Companies in America" and Business Week ranked us #11 on its list of Hot Growth Companies.

Due to our rapid growth, we have immediate, full-time opportunities for both entry-level and experienced Software Engineers, Consultants, Programmers, Programmer/Analysts, Project Leaders, Project Managers, Supervisors, Database Administrators, Computer Personnel Managers and Computer Operations/Account Managers/Account Executives with any of the following skills:

Mainframe

- IMS DB/DC or DB2, MVS/ESA, COBOL, CICS
- Focus, IDMS or SAS

DBA

- ORACLE or SYBASE
- DB2

Client-Server/WEB

- Siebel
- Websphere
- Com/DCom
- Web Architects
- Datawarehousing
- Informix, C or UNIX
- Oracle Developer or Designer 2000
- JAVA, HTML, Active X
- Web Commerce
- SAP/R3, ABAP/4 or FICO or MM & SD
- Oracle Applications & Tools
- Lotus Notes Developer
- UNIX System Administrator
- UNIX, C, C++, Visual C++, CORBA, OOD or OOPS
- WinNT
- Sybase, Access or SQL server
- PeopleSoft
- Visual Basic
- PowerBuilder
- IEF

Account Executives, Account Managers and Business Development/Account Specialist

positions available.

Some positions require a Bachelor's degree, others a Master's degree. We also accept the equivalent of the degree in education and experience.

With Syntel (NASDAQ: SYNT), you'll enjoy excellent compensation, full benefits, employee stock purchase plan and more. Please forward your resume and salary requirements to: **Syntel, Inc., Attn: Recruiting Manager-LD07, 525 E. Big Beaver, Suite 300, Troy, MI 48083. Phone: 248-619-2800; Fax: 248-619-2888.** Equal Opportunity Employer.

SYNTEL
www.syntelinc.com

SENIOR PROGRAMMER ANALYST: (Ancillary IS Support Dept.) Duties include: Formulate and define systems scope and objectives in order to purchase, design, develop or modify information systems. Responsibilities & duties include: ID and analysis of business requirements geared towards applying computer technology to business processes, creating functional specifications and programming to these specifications where no suitable vendor solution has been identified to solve business problem; vendor application software research and valuation; installation and customization of vendor packages as required by business community; system integration as required by business functionality; creating functional specifications and programming conversion and interface processes; analysis, preparation of documentation and presentation to the Technology Planning committee on SW application systems requested to be developed/purchased by the business community; act as a liaison between business personnel in the ancillary departments and outside vendors, Central IS or other business units' IS communities on any IT-related issues; and provide administrative functionality, training and application support for vendor packages, where appropriate. Min Reqt's: BS/BA (foreign equivalent accepted) in CS, EE or related field of study plus 2 years exp. in job offered or 2 years exp. in related occupation (i.e. Programming or Systems Analysis). MUST possess demonstrated expertise in the following: (1) Major system installation including development, implementation, and maintenance of distributed systems; (2) Programming and Database develop. with: VB/C++, Java, MS SQL Server and Access databases; (3) Applications development for financial services products and industry including financial reporting; and (4) Using Crystal Reports, PVCS Dimensions, or Installshield. Basic salary pay range is $55,500-65,000 per year FT and standard company benefits. EEO. Submit 2 resumes and respond to Case No. 2002-02295, Labor Exchange Office, 19 Staniford Street, 1st Floor, Boston, MA 02114.

SENIOR PROGRAMMER ANALYST: (Ancillary IS support Dept.) Duties include: Formulate and define systems scope and objectives in order to purchase, design, develop or modify information systems. Responsibilities & duties include: ID and analysis of business requirements geared towards applying computer technology to business processes; creating functional specifications and programming to these specifications where no suitable vendor solution has been identified to solve business problem; vendor application software research and valuation; installation and customization of vendor packages as required by business community; system integration as required by business functionality; creating functional specifications and programming conversion and interface processes: analysis, preparation of documentation and presentation to the Technology Planning committee on SW application systems requested to be developed/purchased by the business community; act as a liaison between business personnel in the ancillary departments and outside vendors, Central IS or other business units' IS communities on any IT-related issues; and provide administrative functionality, training and application support for vendor packages where appropriate. Min. Reqt's: BS/BA (foreign equivalent accepted) in CS, EE or related field of study plus 2 years exp. in job offered or 2 years exp. in related occupation (i.e. Programming or Systems Analysis). MUST possess demonstrated expertise in the following: (1) Major system installation including development, implementation, and maintenance of distributed systems; (2) Programming and Database develop. with: VB/C++, Crystal Reports, MS SQL Server and Access databases; (3) Applications development for financial services products and industry including financial reporting; and (4) Using PVCS Dimensions, Installshield, Unix and HTML. Basic salary pay range is $55,500-65,000 per year FT and standard company benefits. EEO. Submit 2 resumes and respond to Case No. 2002-02296, Labor Exchange Office, 19 Staniford Street, 1st Floor, Boston, MA 02114.

BUSINESS SYSTEMS ANALYST. Duties include: Will assist in formulation and definition of systems scope and objectives in order to purchase, design, develop or modify information systems. Involved in supporting all processes concerning systems analysis and programming, including design factors, hardware and software requirements, system facilities, and job control procedures. Will identify and analyze business requirements geared toward applying computer technology to business processes. Will create functional specifications and derivative programs. Will conduct vendor application software research and evaluation and install customized vendor packages and complete system integration as required. Will analyze and prepare documentation on application systems for internal and external use. Min. Reqs.: BS/BA (foreign equivalent accepted) in CIS, MIS, Business or related field of study plus 6 months exp. in job offered or 6 months exp. in related occupation (i.e. Systems Analysis for Business Applications). MUST possess demonstrated experience and working knowledge in the following: (1) Training, evaluating and administering SW packages; (2) Database modeling and reporting; and (3) SW implementation - including testing and process mapping to meet business/financial requirements. Basic pay is $55,952 per year FT and standard company benefits. EEO. Submit 2 resumes and respond to Case No. 2002-02288, Labor Exchange Office, 19 Staniford Street, 1st Floor, Boston, MA 02114.

Senior Oracle Database Administrator - Train junior level Oracle Database Administrators. Implement and maintain Oracle databases. Plan, coordinate and administer Oracle 11i application components and databases including perform account maintenance, maintain security integrity controls, create database objects, install and upgrade production and development/test databases. Database and application upgrades, capacity planning and space management, standards development, operational guidelines and protection. Plan and perform backup and recovery strategies. Monitor/tune and optimize database performance. "On-call" duties for mission critical applications and implementation of database replication and system interfaces. Assume database responsibilities in support of application implementation efforts. Specialized in RDBMS and UNIX. Requirements include a Bachelors degree or equivalent in Computer Science, Automatic Control or related field and five years of work experience in the job offered or related field of database administration using knowledge in SOL, UNIX, UNIX SHELL, Client/Server, RDBMS, ORACLE APPLICATIONS 11I, ORACLE 8I, Web server, Windows and Windows NT. Applicants must have unrestricted authorization to work in the United States. Salary $72,421/year. 40 hours/wk. Respond with two copies of resume to Case #200202574, Labor Exchange Office, 19 Staniford St., 1st Fl., Boston, MA 02114.

Analyst/Project Programmer

The Medical College of Wisconsin is seeking Analyst/Project Programmers for its Bioinformatics Research Center. The Analyst/Project Programmer is responsible for working with project scientists and other project collaborators to design, develop, implement, and provide maintenance support for web database applications for biological and medical scientific research. Qualified candidates for this position must possess a Master's degree in Bioinformatics or a related field, and have background working with GLEAMS-3.0; TIGR Microarray Analysis software suite; rational software tools and UML; XML, XSL, UDDI, WSDI and NLP technologies. Interested applicants please provide a resume and a cover letter with salary requirements:

Medical College of Wisconsin
Attn: Employment Office - JMC0728
8701 Watertown Plank Rd.
Milwaukee, WI 53226
Fax: 414-456-6502

Computer Professionals: Infowave Systems, Inc, an IT consulting firm is looking for qualified individuals with minimum of two years experience in software design and development to work at various client sites throughout US. Specifically we have the following openings: SAP ERP Engineers, Oracle Data Warehouse Engineers, Oracle Software Engineers, Oracle Database Administrators, Microsoft and ERP Engineers, Java Engineers, Systems Analysts, and MF Data Warehouse Engineers. Send resume to: Infowave Systems, Attn: HRD, 39 Central Square, Ste. 201A, Keene, NH 03431.

Computer Programmer Analysts needed. Seeking qualified candidates possessing MS/BS or equiv. and/or relevant work exp. Work with 3 of the following: Unix, C++, Java, SQL. Send resume & ref. to ICSS, Inc., Attn: HR, 1000 Morrison Rd., #E, Gahanna, OH 43230.

Seeking qualified applicants for the following positions in Colorado Springs, CO: Senior Business Application Analyst. Plan, direct and coordinate large-scale IT development projects and serve as liaison between developers and users. Requirements: Bachelor's degree or equivalent* in computer science, business, math, statistics or related field plus 5 years of expenence in analyzing business systems and developing technical automated solutions. Expenence with: UNIX, Shell Scripting; end CompuWare Automated Test Tools also required. *Master's degree in appropriate field will be acceptable and will offset 2 years of general experience. Submit resumes to Recruiting, FedEx Corporate Services, 350 Spectrum Loop, Colorado Springs, CO 80921 EOE M/F/D/V

Project Manager - Oversee installation of computer telecommunications integration systems at client sites. Obtain system acceptance at completion. Req'd: Bach. Deg. in Comp. Science, Business Admin., or Eng'g, 5yrs. exp. in the job offered, as a Systems Eng., or in a computer telecommunications integration occup. Must have exp. w/ LAN, WAN, PBX, & CTI. Must be fluent in Spanish & willing to travel extensively through out the US, Central, & S. America. Resume to: NICE Systems, Inc. 301 Rte. 17 N., 10th Fl., Rutherford, NJ 07070. Attn: Geraldine Farese.

Programmer Analyst. Analyze customer system reqmts using Unified Process, prototyping & other methodologies & recommend course of action; research, test, recommend, & implmt h/ware & s/ware purchases; dvlp new &/or modify existing systms, incl writing prgm specs, coding & dsgng data bases; create test plans & eval test reports; provide production & customer support. BS in Math or related field or equiv education & exp + 3 yrs exp as Systms Analyst, Prgmr or similar duties under a different job title. Exp must incl: prgmg in COBOL; systms analysis & dsgn; systms & data processing policies, practices & procedures; mainframe &/or client-server envrmts. Demonstrated written & oral communication skills. 40hrs/wk, $61K/yr. Must have proof of legal auth to work in US. Send your resume to IA Workforce Center, 215 Watson Powell Jr. Way, Des Moines, IA 50309-1727. Please refer to Job Order #IA1101762. Employer paid ad.

Software Engineer (Bioinformatics)

Genaissance Pharmaceuticals, Inc. has an immediate opening in its New Haven, Connecticut facility for a Software Engineer (Bioinformatics). Will develop and execute software system test plans and perform various database, data mining, integration research, and design and testing assignments in the development of computer systems and applications in the field of Bioinformatics. Must possess a Ph.D. in Life Sciences, Mathematics, Physics, or Computer Science; and relevant work experience, including experience with mathematical modeling and concepts, such as probability and statistical inferences and algorithmic proofs, socket programming for BSD Kernel and Java, Oracle computing-based environment, Java and SQL programming languages, and UNIX operating system.

Resume and/or cover letter must reflect each requirement above and specify reference code SZ/SEB or it will be rejected. Forward resume to: Leigh Webb, Human Resources Associate, Genaissance Pharmaceuticals, Inc., Five Science Park, New Haven, CT 06511. We are an equal opportunity employer.

DATABASE ADMINISTRATOR. Design, code, test, implement & manage med school admissions/activity/marketing data base based on spec mgt system using custom Microsoft access. Plan system wide security measures. 8:30AM-5PM B.Sc. in Computer Science & 1 yr exp as programmer, analyst or consultant in field. Salary comm with exp. Resume to MEIO, 901 Ponce De Leon Blvd, #401, Coral Gables, FL 33134.

Seeking qualified applicants for the position of Senior Network/Systems Design Engineer to help innovate and specify new product & platform architectures for optical networking systems. Position requires a Bachelor's Degree in Electrical or Electronics and Communications Engineering or related discipline and 6 years of relevant experience in network systems design, architecture and operations within the optical networking industry. Submit resume to: Director of Engineerng, Memphis Networx, LLC, 7620 Appling Center Drive, Memphis, TN 38133.

Systems Analysts to work as consultants at client sites in the U.S. and abroad. Implmt, customize & upgrade Oracle ERP s/ware pkgs. Reqs: BA/BS in Comp Sci, Eng'g, Bus, Logistics, HR, or related field + 2 yrs exp w/Oracle Apps or DB's. Send resumes, refs and salary req's to Attn: HR, IT Convergence, 150 E. Gilman St., Suite B2200, Madison, WI 53703 or resume@itconvergence.com.

Seeking qualified applicants for the following positions in Orlando, FL: Senior Programmer Analyst. Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree or equivalent in computer science, MIS, engineering or related field plus 5 years of experience in systems/applications development. Experience with C and/or C++; and UNIX also required. (Master's degree in appropriate field will offset 2 years of general experience.) Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Software engineers/system analyst wanted by ASI DataMyte, a company provides total quality solutions for the manufacturing marketplace. Candidates must have BS or equivalent with min one-yr experience. Skills in Oracle, SOL, Java preferred. Apply at hr@asidatamyte.com. EOE

Global Consulting is looking for programmer/system analysts, software engineers. Candidate must have BS with IT experience. Good skills in C/C++, Java, Oracle, EJB, J2BB, WebLogic, VB, HTML are plus. Traveling is required for some positions. Apply job@g-c-g.net. EOE

Software Engineers & Programmers: Analyze, design, develop, test and maintain a highly sophisticated/interactive Web Portal, e-commerce and content management system encompassing over 500 categories and 22,000 products/services and software solutions employing state of the art engine search technology including DB2 7.0, WebSphere 3.5, IBM Server, Tomcat, Oracle/Oracle 9iAS, WebLogic, Microsoft Visio, UML, P3P, IBM policy Editor, SilverPop & Accucast email servers, SalesLogix, Proficient, Web Trends & KeyLine tracking, Starteam, Unix Shell Scripting, Ultra edit, Top Style Pro, XML, J2EE and related technologies. For Info or to apply, contact Human Resources, KnowledgeStorm, Inc., 2520 Northwinds Parkway, Suite 300, Alpharetta, GA 30004. EOE. No phone calls please.

COMPUTER
Accelrys, Inc., a leading provider of scientific software for biologists, chemists and materials scientists, has a SOFTWARE ENGINEER position available in San Diego, CA. Requires Ph.D. in Computer Science, Electrical Engineering or a related field. 1 year of experience in the job offered or 1 year of experience in a related occupation (software development). Academic background or work experience to include: 1) Microsoft COM-based multi-layer architecture design and programming; 2) J2EE multi-layer architecture design and programming (HTML, Java and EJB); 3) Object-oriented programming (C++, Java); 4) Algorithm design and development (text-mining algorithms and knowledge management algorithms); and 5) User Interface design and development. Mail resume Accelrys, Inc., Attn: HR Dept., 9685 Scranton Rd., San Diego, CA 92121. Job Ref. #16000-1.

Prog/Analysts (Job40) to analyze, design appls using C++, Java, EJB, JSP, Jscript, Servlets, XML, HTML, Weblogic Server, Oracle, under Windows /UNIX OS; perform unit, functional, integration, regression & systems level testing; analyze user reqs, prepare design documents; develop/enhance online & batch programs; implement, install, test, debug & modify new/existing appls. Require: BS or foreign equiv. in CS/Engg. (any branch)/Math & 2yrs of exp. in IT. F/T. Resumes to: Pricilla Vickers, Transplace, 509 Enterprise Drive, Lowell, AR 72745. Must specify on cover letter applying to Job 40.

Seeking qualified applicants for the following positions in Memphis, TN Senior Project Analyst Sales Serve as advisor for new services, sales and compensation systems projects Requirements: Bachelor's degree* or equivalent in MIS, business or related field plus 5 years of expenence in planning and analysis. Expenence in developing database quenes for performance trend analysis and in developing/maintaining variable compensation programs also required. *Master's degree in appropnate field will offset 2 years of general experience. Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd , Suite 1400, Orlando, FL 32810. EOE M/F/D/V

Vice President Global Information Technology for Fire Protection and Electronic Security industry. Candidate must have Bachelor's degree in Comp Sci or equivalent, 10 years managerial exp in IT field, and exp in ERP implementation and Baan. Send resume and salary requirements to: communicationse@sensormatic.com or mail to Sensormatic Electronics Corporation, attn: Human Resources Department, 6600 Congress Avenue, Boca Raton, FL 33487.

Systems Analyst - (Philadelphia, PA) Research, design, & develop existing computer system. Analyze, design, test, & implement applications supporting the system & determine feasibility of design. Consult with eng'g staff to evaluate interface between hardware & software & operational/performance requirements of overall system. Investigate & correct system problems. Req'd: Bach. Deg in Comp. Science or Eng'g, & 2yrs exp. in the job offered or as a Analyst or Programmer. Must have exp. w/ VB 4.0, FoxPro, & Clipper. Resume to: Pinkerton Computer Consultants, 140 Broadway, 23rd Fl, New York, NY 10005 Attn: John Wighton.

NetworkWorld

Editorial Index

Advertiser Index

These indexes are provided as a reader service. Although every effort has been made to make them as complete as possible, the publisher does not assume liability for errors or omissions.

*Indicates Regional Demographic

Network World, Inc.

118 Turnpike Road, Southborough, MA 01772
Phone: (508) 460-3333

TO SEND E-MAIL TO NWW STAFF
firstname_lastname@nww.com

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Sales Offices

Carol Lasker, Associate Publisher/Vice President
Jane Weissman, Sales Operetions Coordinator
Internet: clesker, jweissman@nww.com
(508) 460-3333/FAX: (508) 460-1237

New York/New Jersey
Tom Davis, Associate Publisher, Eastern Region
Elisa Delle Rocco, Regional Sales Manager
Agata Joseph, Sales Associate
Internet: tdavis, elisas, ajoseph@nww.com
(201) 587-0090/FAX: (201) 712-9786

Northeast
Donna Pomponi, Regional Sales Manager
Caitlin Horgan, Sales Assistent
Internet: dpomponi, chorgan@nww.com
(508) 460-3333/FAX: (508) 460-1237

Mid-Atlantic
Jacqui DiBianca, Regional Sales Manager
Marta Hagan, Sales Assistant
Internet: jdibian, mhagan@nww.com
(610) 971-1530/FAX: (610) 975-0837

Midwest/Central
Eric Danetz, Regional Sales Manager
Agata Joseph, Sales Associate
Internet: edanetz, ajoseph@nww.com
(201) 587-0090/FAX: (201) 712-9786

Northern California/Northwest
Sandra Kupiec, Associate Publisher, Western Region
Karen Wilde, Ragional Sales Manager
Miles Dennison, Regional Sales Manager
Maricar Lagura, Office Manager/Sales Assistant
Teri Lowe, Sales Assistant
Internet: skupiec, kwilde, mdennison, mlagura, tlowe@nww.com
(510) 768-2800/FAX: (510) 768-2801

Southwest/Rockies
Becky Bogart Randell, Senior District Manager
Angela Norton, Sales Assistant
Internet: brandell, anorton@nww.com
(949) 250-3006/FAX: (949) 833-2857

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Caitlin Horgan, Sales Assistant
Internet: dseay, chorgan@nww.com
(404) 845-2886/FAX: (404) 250-1646

Customer Access Group
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Kate Zinn, Sales Manager, Eastern Region
Caitlin Horgan, Sales Assistant
Internet: tdavis, sbudka, kzinn, chorgen@nww.com
(508) 460-3333/FAX: (508) 460-1237

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Debbie Lovell, Online Account Manager
Kristin Douglas, Online Operations Manager
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Enku Gubaie, Senior Account Meneger
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DNS

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While RFID and Enum still face privacy and political issues before mass implementation, DNS is helping prove these technologies are solid. Along with intranets, RFID and 'Enum are fueling the growth of DNS, with DNS entries expected to double in number every year for the next five years.

DNS has been humming along since June 1983, matching Internet names to IP addresses and helping deliver e-mail and Web pages. The largest and most successful globally distributed database, with 1 billion entries, the 20-year-old lookup service need not be reinvented to be an integral part in the new crop of potentially revolutionary technology advances.

"In a sense, we have moved up one level in the kind of problems that people are thinking of attacking with DNS. It's not just keeping track of hosts now. It's now higher-level services," says Paul Mockapetris, who created DNS at the University of Southern California and is now the chief scientist and chairman of Nominum, which develops IP address management software. Mockapetris says DNS also one day could help simplify PKI security.

The new capabilities debunk what Mockapetris says is one of the biggest myths about DNS — that it has peaked.

"DNS has turned into a building block underneath a number of these other naming systems," he says.

In 1999, researchers at the Auto-ID Center at the Massachusetts Institute of Technology theorized that they could make RFID tags less expensive by offloading some data stored on the tags to the network, therefore reducing data storage and silicon needs.

"But the question was, how do you connect the unique number associated with the RFID tag to the data?" says Sanjay Sarma, associate professor of mechanical engineering at MIT and chairman of the Auto-ID Center. The center is a non-profit partnership between 100 global companies, MIT, the University of Cambridge in England, the University of Adelaide in Australia, Keio University in Japan and the University of St. Gallen in Switzerland. The center is working on creating the standards and assembling the building blocks needed to create an "Internet of things."

To make the connection between the RFID tag and the network-stored data, the center developed the Object Naming Service (ONS), which is built on top of DNS. ONS converts an electronic product code into a domain name that can be looked up on a local DNS cache or a DNS server on the Internet. Once the DNS pinpoints where the product data is stored, it can be downloaded.

"DNS is so beautifully designed and so simple that it took very little work to seamlessly incorporate it," Sarma says. DNS also addressed the problem of scalability. "We realized that DNS has caching and time-to-live records and that many lookups would happen in a local cache and never go out to the Internet."

It's that same scalability that led IETF to latch onto DNS for Enum. The pending standard will make it possible to convert telephone numbers into Internet addresses. This means a caller knowing only a telephone number can use a range of Internet services — such as voice, e-mail and conferencing — to reach another user.

"The unique thing about DNS is that it is a public database, it's not a telecom database that is owned by a carrier and that you need approval and payments for access," says Kevin McCandless, senior manager for engineering and construction at VeriSign. McCandless is the author of several documents before the IETF's Enum working group and VeriSign's representative at the Enum Forum, a collection of firms developing Enum-based products.

With DNS as its location service, Enum eventually could lead a telecom revolution using phone numbers based on International Telecommunication Union E.164 format.

"This is all a huge threat to the ILECs," says Dave Passmore, an analyst with Burton Group. "The cable companies are starting to offer phone service and it is clear they will use SIP-based IP telephony."

DNS creator Mockapetris looks at Enum and RFID and sees the next level of intelligence for DNS. Mockapetris says he thinks DNS could provide a foundation for a PKI system that could help fight Internet-based identity theft.

"You could use the DNS as a transport, as a way to carry PKI information around," he says. "You know if you could do that, DNS is a protocol that every Internet device could speak. Of course, there is a lot of stuff you would have to add to make it work."

Other concerns remain.

Improperly configured DNS servers at corporations continue to present vulnerabilities. A downed corporate DNS server today means a company disappears from the Internet, but in the future it also could knock out phone service or other modes of real-time communication.

Today, nearly 70% of corporate DNS servers have configuration problems, a figure that has remained steady over the years, according to Men & Mice, a DNS software and consulting firm.

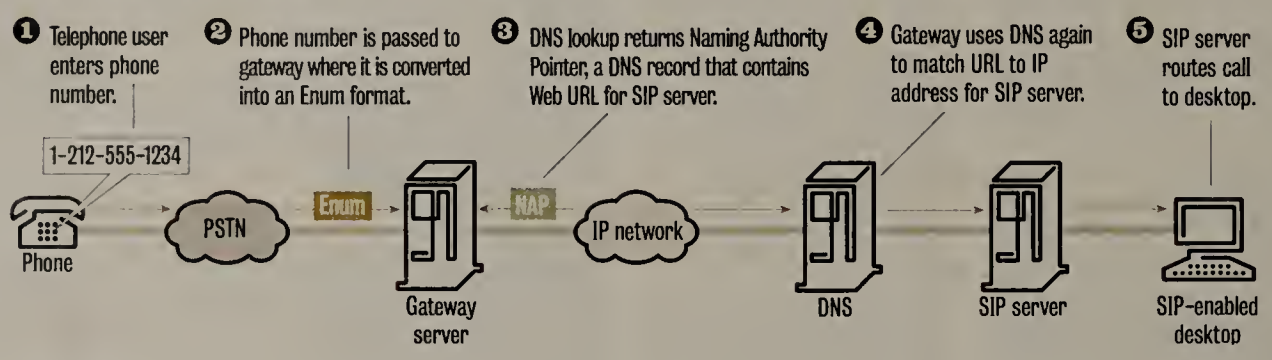
And the addition of new data types, such as those for Enum and RFID, will pose management problems for companies. Mockapetris says a new generation of tools will be needed to mask the complexity. "Originally we built DNS so it was very simple to configure, but everybody was a computer scientist," he says. "We need more automatic tools to monitor the health and deal with the problems."

Another welcomed advancement will be widespread adoption of DNS Security Extensions, which could provide security features for authenticity and integrity. The protocols have been under development since 1996, but suffer from technical and political issues, such as establishing trust relationships.

"The new challenge is to see whether we can continue to use DNS for whatever we like, to continue to add stuff on top of it," Mockapetris says. "We don't want DNS to be a scarce resource. We want domain names and the ability to do these lookups as a tool that people building Internet applications can use and it will just be there. It is not going to run out. It's like clean air and water: You want clean names so to speak, and clean data, it's what applications need to live on."■

Convergence

One of the promises of Enum is the convergence of traditional PSTN networks and IP networks, which would let phones on circuit-based networks call devices on IP-based networks.



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Dell

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But there is also the headache of managing multiple low-end boxes, says Jason Robohm, director of technical services at Crossmark Holdings in Plano, Texas.

Most applications aren't optimized to run in distributed environments and so users aren't getting a true shared resource cluster, says Robohm, who runs applications such as Lawson, Exchange and SQL on eight-way ProLiant servers.

"People are able to get good performance at a reasonably good price in a clustered four-way environment, but they're not taking advantage of the total eight processors because it's four for one [instance] of the database and four for another [instance]," he says. "If you need enterprise level, mission-critical, big-transactions-per-second processing, eight-way is the only way to go."

Robohm says it's interesting to see Dell scrap an Intel platform, but says the eight-way market requires more engineering and customization than the one-way and two-way markets that Dell commoditized. For example, HP stepped up its eight-way systems earlier this year with a new F8 chipset and a hot-pluggable RAID memory feature.

IBM's Enterprise X-Architecture lets its eight-way systems scale up to 16 Xeon MP processors. Later this year, it will be able to support up to 32 processors, the company says.

"That's something that Dell doesn't have access to," Robohm says. "So if they kept down the road of eight-way servers they would always be second fiddle."

Insight 64's Brookwood agrees.

"Customers who are looking for eight-way or above don't feel comfortable buying it from a company like Dell," he says. "It's not that they wouldn't buy it at all. It's just that they wouldn't buy it from Dell."■

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BPA INTERNATIONAL

Cisco

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"This bug definitely has the potential to be a significant threat to businesses," says Pat Donahue, a network administrator with ACMI, a maker of medical equipment that has offices across the country.

Donahue says the ubiquity of IOS and the ease with which the bug could be exploited prompted him to act quickly. He downloaded the patch from Cisco and had all his equipment upgraded within days.

"I felt much safer knowing that the software running the router itself is not vulnerable, rather than relying on access lists that may or may not work or could be modified or removed at some later date," he says.

Other companies reported taking immediate action.

"For SBC, it was a total of about 600 pieces of equipment that were affected," said an SBC spokesman. "We immediately started rolling out that patch."

The upgrades were done on a rolling basis so no service was interrupted, and all equipment was patched as of July 18.

Others were taking a more measured approach.

"We're looking at it," says Dick Emford, lead network analyst for plastics manufacturer Newell-Rubbermaid, about the IOS vulnerability. "But we haven't yet assessed how bad it might be for us."

Rubbermaid's network links many manufacturing sites in the U.S. over a WAN, but few Cisco nodes face public or unprotected Internet connections so it is not an urgent concern, Emford says.

"We're monitoring this vulnerability . . . but we're not too concerned about it," says Phil Go, CIO at Barton Malow. The Chicago construction company uses Cisco routers to link three offices across the country with IP voice and data. Go is confident because his firm uses access control lists to keep traffic on those routers limited to internal corporate voice and data packets, and few ports face the Internet.

Hesitancy in upgrading routers is common, says one veteran industry watcher.

"Lots of companies, when they buy routers, don't want to upgrade them [later]," says Frank Dzubeck, president of consultancy Communications Network Architects. "They think they're buying an appliance, not a software product....And if they get three or four [IOS revisions] behind, there's much trepidation when the time comes to apply a major patch like this."

Smaller shops, in particular, might be slow to apply patches, or are taking extra time to determine if gear is at risk, experts say. This is because upgrading IOS on older routers that have been chugging along for long periods of time without maintenance can be a tricky proposition.

"It [is] more difficult for organizations that don't have an engineer on staff" to upgrade an affected IOS device, says Toby Velte, CTO of software company Solv Technology, and author of the book *Cisco: A Beginners Guide*.

The upgrade process involves downloading the patch, applying it to an IOS version, sending the image to a router, then restarting the device "which kills all open connections," he says. This procedure could be trouble for organizations that cannot avoid router downtime, or those that have lots of routers but few IT staff members proficient in IOS.

> **"Lots of companies, when they buy routers, don't want to upgrade them [later]."**
>
> **Frank Dzubeck**
> President, Communications Network Architects

"If you get the wrong IOS on the device or screw something else up along the way, the device will be down until you get it right," Velte adds.

Becoming proficient in IOS can take hours of reading, coursework and certification, and years of experience. IOS is an intricate operating system that can support many things besides routing packets — such as security, VoIP, Wi-Fi and quality of service.

Dzubeck says that a decade of evolution and consistent re-crafting of IOS might lead to the code becoming prone to failures.

"IOS is really an amalgamation of a number of things," Dzubeck says, adding that as the code gets on in years more vulnerabilities could pop up.

But Velte disagrees that "feature bloat" is to blame.

"While the code is getting larger by including more features, the hardware capabilities have more than kept up," Velte says. "When some software trees get older, such as Unix, they get more hardened and reliable. A recent copy of IOS is greatly improved over a five-year-old version. The presently discovered vulnerability could have been in IOS for years. So it wasn't IOS bloat that caused the problem to appear. It was the level of sophistication of those that probe for such vulnerabilities."

Jim Duffy, managing editor of Network World's The Edge, contributed to this story.

EMC

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Most important is the introduction of an asynchronous version of EMC's data replication software used by businesses to transfer data between geographically separated locations for disaster-recovery purposes. Called the Symmetrix Remote Data Facility (SRDF), the new asynchronous mode lets data be replicated using IP over any distance. EMC's previous synchronous mode was limited to 62 miles without the addition of a channel extension box from CNT or Nortel.

"Asynchronous replication permits geographical data distribution and backup, and assists in controlling the cost of the telecommunications infrastructure, which gives people more reason to replicate more data," says Brian Babineau, an analyst with Enterprise Storage Group. "Large financial services companies need to recover from disasters outside their geographic region. If there is a major incident in the New York region, they can recover data from offices in Chicago that would not be affected by the regional disaster."

Users and vendors are becoming interested in replication. Earlier this month, Sprint, Cisco and Hitachi Data Systems demonstrated replication using the Fiber Channel over IP (FCIP) protocol over a distance of 1,800 miles. CNT also showed off long-distance replication over 7,580 miles using FCIP between the U.S. and Europe. In 2001, Nishan Systems, IBM, Intel, Dell, QLogic and Qwest demonstrated replication via the Internet Fibre Channel Protocol of more than 3,100 miles.

At least one analyst sees EMC's replication capability as a matter of survival in the growing replication market.

"If EMC did not start to hustle in delivering inexpensive replication solutions, everyone was going to move away and do applications either from the network or some gadget in the middle of the fabric," says Arun Taneja, senior analyst with Taneja Group. "This is a survival move for EMC. If they don't do it, they are going to hurt."

Replication software experienced the largest growth in the storage software industry in the first quarter of this year, according to IDC, accounting for $263 million of the $1.42 billion market.

EMC's asynchronous SRDF also will use a native Ethernet adapter, thus eliminating the need for installing and managing a separate CNT, Cisco or Nortel router.

"The primary benefit obviously is having one less box to purchase and manage, so you would hope there is some kind of cost benefit if the functionality is built into a card or blade within the box" says John McKnight, an analyst with Enterprise Storage Group. "Then there are management and operational efficiencies from not having to discover and manage an entirely new device. The management functionality would likely be an extension of storage software the administrator is familiar with."

Storage software sees growth spurt

Replication software experienced the largest growth in the storage software industry in the first quarter of this year, says IDC. It accounted for

$263

million of the $1.42 billion market.

The benefit of an integrated card for replication is not lost on one user.

"It removes the need to get a network-to-SAN bridge, since it is already providing one within the box," says Kent Smith, principal consultant for IPSO, a business systems integrator in Wayland, Mass. "The fewer pieces I need to buy, the happier I am for two reasons — fewer pieces equal lower cost and fewer vendors equal [a box that is] easier to support."

The company also will introduce a new configuration of its existing DMX800 modular storage system that has half the capacity of the existing DMX800. It also will roll out a new DMX3000 array, which has twice the capacity of the company's largest array, the 146G-byte DMX2000.

The entry-level DMX800 has from eight to 60 73G- or 146G-byte drives for a total minimum capacity of 292G bytes. The DMX3000 has a maximum capacity of 84 terabytes and like the DMX800 uses 10,000- or 15,000-rpm 73G- or 146G-byte drives.

Gartner expects the midrange market to grow faster than high-end storage. It says midrange storage will increase from $5.9 billion in 2001 to $9 billion in 2006. By contrast, Gartner expects high-end storage to increase from $7.4 billion in 2001 to $8 billion in 2006. While EMC dominates the high-end market with a 41.5% market share, it has only 5% market share in midrange storage.

EMC's DMX arrays are also among the first from major systems vendors to offer native iSCSI support, enabling the transport of Fibre Channel storage data over the Gigabit Ethernet network. In May, Network Appliance jumpstarted the iSCSI market by rolling out FAS900 and F800 file servers that support the iSCSI protocol.

Further, the company has added FICON capability, which lets administrators join SANs to mainframe computers and get many times greater performance than with previous Enterprise Systems Connection (ESCON) enabled storage arrays.

Industry analysts praised EMC for adopting features they say are a must for any storage array.

"Large z/OS or MVS customers like insurance companies, banks and financial institutions, have already migrated from ESCON to FICON because FICON is faster," says Diane McAdam, senior analyst with Data Mobility Group. "Because the DMX couldn't talk FICON, those customers had to use older EMC equipment."

ESCON had a 17M-byte/sec maximum burst rate, and FICON's is 100M byte/sec.

Further, EMC will announce the ability of the DMX arrays to connect to IBM iSeries (AS/400) servers. ■

BackSpin Mark Gibbs

The jackals of IT

You must have seen those documentaries about the African savanna where something like a water buffalo is hounded by jackals until it either drives them off or, exhausted, is overwhelmed and killed. Well, in the civilized world of IT you don't expect to see the jackals show themselves quite so openly. That was until The SCO Group started hounding IBM and the Linux world.

On the face of it, SCO's contention that IBM gave away code that belonged to SCO and consequently owes SCO $1 billion looks — as so many have pointed out — like a cheap ploy to get itself bought rather than continue to struggle to make a profit.

SCO went on to declare that, because IBM contributed code to Linux that contains SCO Unix intellectual property, commercial Linux customers could be legally liable for using the code. Of course SCO has yet to show the code in question so what we have here is a web of assertions, implications, bombast and threats.

Then SCO announced that Microsoft had licensed SCO's Unix code and soon thereafter Sun signed up. Why? Because getting a place in the pack of jackals gives them both a role in trying to bring down Linux in particular and open source in general.

It gets better: Just last week SCO announced the company "is prepared to offer a license for SCO's UnixWare 7.1.3 product for use in conjunction with any Linux product," which means it is ready to start threatening large Linux users. You have to wonder at the sheer chutzpah of these guys.

I say chutzpah because even if SCO is right and IBM has given the open source world a hairy problem to deal with, for SCO to go after a huge group of users in a way that guarantees SCO will become public enemy No. 1 is beyond stupid.

Until SCO reveals all the code that it says proves intellectual property infringement we will have to wait and watch the slow dance of lawyers jockeying for position. In the meantime, the damage to open source and Linux is being done, slowly but surely.

This is a really important issue. The future of both open source and Linux is not something for a single vendor to control or manage. Linux is arguably the biggest leveling of the computing playing field we've ever seen.

There are two simple solutions: One, if SCO can be bought out then IBM should do so whether or not SCO has a case. The business opportunity offered by its acquisition can't be that bad and to IBM the cost would be like a rounding error in the coffee fund.

And how about if IBM got all of the other Linux vendors to chip in — a few million here, a few million there and soon we'll be talking real money. At the end of the exercise the group would own the intellectual property and it could finally, once and for all, be placed under the General Public License.

The other solution would be for every interested party to fight SCO. Everyone would need to adopt a "we'll fight to the bitter end" position, and then let's see how long SCO's money lasts. On the other hand, the entire case — which from what I've read cannot ultimately be won by SCO — is unlikely to cost more than buying out the wretched company, so the first solution would be the least messy.

This isn't an issue concerning everyday commercial rights. The wrong outcome — SCO prevailing and holding everyone that uses Linux commercially hostage — would not only destroy arguably the most profound and important computing direction since the appearance of the IBM PC, it also would give Microsoft a huge advantage in securing the future of its proprietary technologies.

Think Microsoft has a monopoly now? Just imagine how strong it would become without the threat of Linux! If the jackals win we'll be stuck in the proprietary Dark Ages rather than transitioning to the Age of Open Source Enlightenment.

Your theories to backspin@gibbs.com.

'NetBuzz News, insights, opinions and oddities

By Paul McNamara

Mistaken identity-theft figures

Something is wrong here.

Gartner last week reported that 3.4% of 2,445 U.S. adults surveyed by mail claimed to have been the victim of identity theft within the past 12 months.

Identity theft is among the most frightening of non-violent crimes, not only because of the financial toll it exacts but also the endless hurdles victims must clear to restore their good names. The crime predates the Internet and need not involve computers, of course, but stands today as perhaps the most powerful drag on the growth of e-commerce.

If the Gartner survey accurately reflects the prevalence of this crime, it means some 7 million Americans were victimized between June 2002 and June 2003, an almost 80% increase over the previous year's Gartner survey.

But here's the good news: It's virtually inconceivable — at least to me — that these figures accurately reflect reality. In fact, it appears unlikely they're even in the ballpark.

It's important to understand that Gartner is not talking about simple credit card fraud: "With identity theft, a thief takes over a consumer's entire identity by stealing critical private information, such as the Social Security number, driver's license number, address, credit card number or bank account number," Gartner says. "The thief can then use the stolen information to obtain illegal loans or credit lines to buy goods and services under the stolen name."

Gartner's data would have us believe that 3.4% of U.S. adults — again, 7 million people — were so victimized in just one year.

However, the Federal Trade Commission's clearinghouse for identity-theft information reports having logged about 162,000 such complaints last year from various sources. The FTC site states upfront that this is not an all-inclusive count, but it would have to be considered completely irrelevant — as in accounting for only 1 in every 43 such crimes — if the Gartner survey reflects reality.

According to figures from the National Crime Victimization Survey posted on the Justice Department's Web site, "In 2001, U.S. residents age 12 or older experienced approximately 24.2 million crimes" of all types. About 5.7 million were violent, so let's back them out of the total, along with a few million for the 12-to-18 crowd that Gartner isn't counting. (We're also looking at 2001 numbers, but they ought not to have increased dramatically since they are overall crime figures.)

If you take both the Justice Department and Gartner numbers at face value it means that roughly half of all non-violent crime is identity theft.

Anyone buy that?

"The survey methodology and question set were sound," says Avivah Litan, the Gartner analyst who authored the report. "The numbers are an accurate reflection of those who believe they have been victimized by identity theft in the past 12 months."

Perhaps there's an answer to the puzzle in the word "believe." Maybe people didn't read or properly comprehend the definition of identity theft, and, in particular, appreciate the distinction between it and credit card fraud. Maybe people didn't note the "past 12 months" caveat.

Who knows? If everyone could understand and correctly answer every question put to them, there would be no need for the SATs.

But here's the truly scary prospect: What if the Gartner numbers are correct?

In that case, virtually every one of us — or one of our family members — stands a solid statistical chance of falling victim to this crime within a few short years.

In other words, if the Gartner data reflects reality, you can pretty much kiss e-commerce goodbye.

And don't forget the frequency with which perception becomes reality: The Gartner figures circulated worldwide in news reports last week. To the extent they create an erroneous impression, the damage already has been done.

Got a take of your own? The address is buzz@nww.com.


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